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THE FUNDAMENTAL REQUIREMENTS OF ENERGY FOR PROPER NUTRITION

GRAHAM LUSK

Professor of Physiology, Cornell University Medical College; Scientific Director, Russell Sage Institute of Pathology, in affiliation with Bellevue Hospital

NEW YORK

From time to time, inquiries have come to this laboratory as to the fundamental requirements of energy for the proper nutrition of different individuals. It must be understood at the outset that portions of the data here presented are matters of established fact, repeatedly confirmed; others are based on unconfirmed observations of individual authorities, but probably correct; while still others are based on estimates as close to the actual state of affairs as one can now attain.

The data may thus be classified:

1. *Absolutely accurate.* Basal metabolism of all ages and sexes, and the increase in metabolism due to (*a*) standing; (*b*) walking; (*c*) carrying a load.

2. *Approximately accurate.* Metabolism in industrial pursuits.

3. *Hypothetic.* Metabolism of children during exercise.

The four charts which accompany this paper show the food requirements (1) of boys from birth to 16 years of age; (2) of soldiers at hard work; (3) of men in industrial pursuits, and (4) of women in industrial pursuits.

The weights of all the individuals here given include the weights of the clothes worn except in the case of children under 5 years of age. The metabolism, however, is calculated on the assumption that the weight with clothes was the naked body weight. Hence, the height of the metabolism as given represents that of individuals somewhat above the average nutritive standard.

METABOLISM OF BOYS FROM BIRTH TO 16 YEARS OF AGE

The weights and heights given in Chart 1 are the average for boys of the same age, as given by Boas.[1] The basal metabolism as calculated is that for well nourished boys who are a little above the average weight of the average boy. The following data were used in making the calculations:

Child at Birth.—The basal metabolism is 48 calories per kilogram of body weight per day.[2]

Boy of from 6 to 12 Months.—The basal metabolism is 60 calories per kilogram.[3] Severe crying increases the basal metabolism 40 per cent. per hour. If the mechanical work done by the baby of 6 months were the equivalent of four hours of crying, the heat production would be increased 29 calories. Since 15 per cent. of the calories ingested are retained for growth, 70 more calories must be added to the basal of 428 calories, making a required total of 537.

Boy of 2 Years.—Consult the report on the metabolism of a boy of 2½ years weighing 11.5 kg.[4]

Boys of from 6 to 16 Years.—Based on curves given in the work of Du Bois,[5] and on the data showing that boys of 12 have a basal metabolism of 50 calories per square meter per hour, and on unpublished work of the same author which gives 44 calories for the same unit of measure when the boys are 14 years old.

Effect of Exercise.—There are few data on which to base the heat production due to the muscular activity of boys. It is probable that an active boy produces twice the number of calories measured by his basal metabolism, whereas for one taking little exercise, a 50 per cent. additional amount undoubtedly suffices. The study of Gephart[6] has shown that boys between 13½ and 16 years of age who actively indulge in athletic sports ingest 5,000 calories daily in their food, or threefold their basal requirement of energy. It should be remembered that an active boy is usually very active.

The metabolism of girls has never been investigated.

METABOLISM OF SOLDIERS

In a paper prepared by the author at the request of Major Murlin, in charge of the Food Division of the Sanitary Corps of the United States Army,[7] the following facts were brought out. It appears that the calories representative of the level of the basal metabolism of a man at the age of 35 years and of a given height are approximately the basal requirement of energy during the active adult years between 20 and 50. A man of a given height and of the average weight at 35 years of age may gain or lose 10 per cent. of his weight without altering the basal metabolism more than 5 per cent. The statistical data for the weight of men of given height and 35 years old were taken from the statistics of the medico-actuarial investigation of 1912.

1. Boas: The Growth of Toronto Children, Report of United States Commissioner of Education, 1896-1897, **2**, 1541.

2. Bailey and Murlin: Am. Jour. Obst., 1915, **71**, 526. Benedict and Talbot: The Physiology of the Newborn Infant, Carnegie Institution of Washington, 1915, Pub. 233.

3. Murlin, J. R., and Hoobler, B. R.: The Energy Metabolism of Ten Hospital Children Between the Ages of Two Months and One Year, Am. Jour. Dis. Child., February, 1915, p. 81.

4. Magnus-Levy and Falk: Arch. f. Physiol., 1899-1900, Supplement, p. 368.

5. Du Bois, E. F.: The Metabolism of Boys 12 and 13 Years Old Compared with the Metabolism at Other Ages, Arch. Int. Med., June, 1916, p. 887.

6. Gephart, F. C.: Report of a Dietary Study of St. Paul's School, Boston Med. and Surg. Jour., 1917, **176**, 17.

7. Consult also Lusk, Graham: Food in War Time, W. B. Saunders Company, Philadelphia, 1918.

From the height-weight chart of Du Bois, the surface area in meters of the individual was calculated, and this was multiplied by 40 to give the basal metabolism per hour. The *basal metabolism* is the amount of heat, as measured in calories, which is produced by an individual lying in bed completely relaxed, at which time the oxidative activities are at their lowest ebb.

When a man stands upright or sits in a chair, his basal metabolism is increased 10 per cent. If he should be awake in the hospital ward sixteen hours and asleep during eight hours, his heat production would be:

(100 + [10×⅔])×calories of basal metabolism

If a soldier walks at the rate of 3 miles an hour, it requires an additional amount of energy equivalent to 1.1 calories to move a pound of his body through this distance each hour.

Since a soldier carries equipment weighing 44 pounds, and this is moved at the same expense of energy as the body weight when a speed of 3 miles an hour is attained, it is evident that $44 \times 1.1 = 48.4$ calories will be required each hour for this amount of additional work. A walk at this rate is accomplished at a minimum expenditure of energy, and hence 3 miles per hour is known as the *maximum economic velocity*.

From this analysis it appears that the average soldier, or one of 5 feet 8 inches in height, requires 4,100 calories for this long day of exceptionally hard work. This is more than the 3,700 calories actually taken by a soldier in the average routine.

The 30 mile hike has been chosen as a type requirement because it may well be taken to represent the equivalent of the maximum of mechanical accomplishment in the day-to-day routine of a man doing the hardest labor, be he of the military or the civilian population. I have elsewhere estimated that to run lightly clad a distance of 40 miles in seven hours and thirty-three minutes, a man weighing 155 pounds requires 5,500 calories per day; whereas to make a record run of 80 miles, the distance between Chicago and Milwaukee, in fifteen hours, calls for an energy requirement of 9,200 calories. Human machines, however, are seldom speeded up to this maximum of capacity, and certainly could not long endure frequent repetition of such strain.

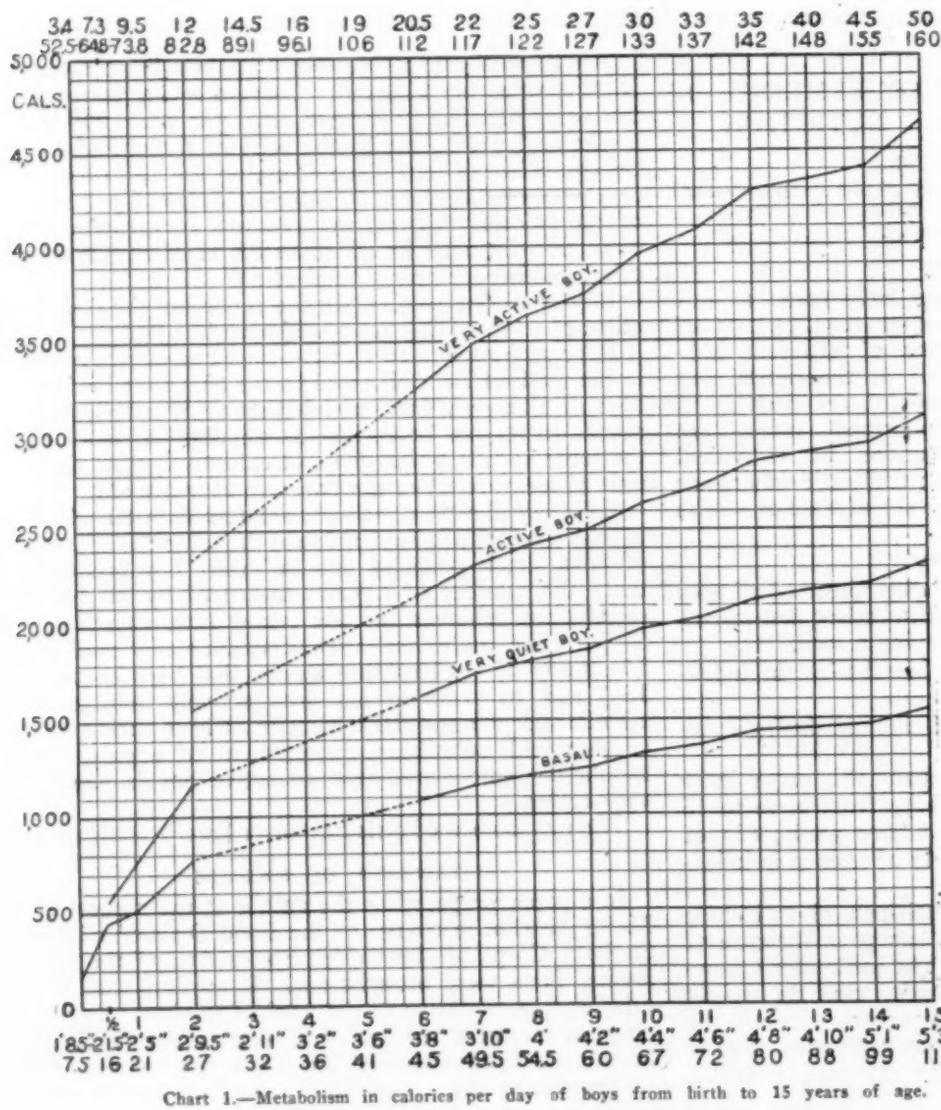

Chart 1.—Metabolism in calories per day of boys from birth to 15 years of age.

METABOLISM OF MEN ENGAGED FOR EIGHT HOURS IN INDUSTRIAL PURSUITS

These results were obtained by adding to the level of the basal metabolism plus the increase due to sixteen hours of standing or sitting, the further increment due to the work of the individual employed at his task during eight hours. The last named data, both for men and for women, were obtained by Becker and Hämäläinen,[8] with the exception of those concerning typewriting, which are based on the careful work of Carpenter.[9]

TABLE 1.—EXTRA CALORIES PER HOUR ATTRIBUTABLE TO OCCUPATIONS OF MEN

Occupation of Men	Extra Calories of Metabolism per Hour Due to Occupation
Tailor	44
Bookbinder	81
Shoemaker	90
Metal worker, filing and hammering	141
Painter of furniture	145
Carpenter making a table	164
Stonemason chiseling tombstone	300
Man sawing wood	378

The extra calories per hour attributable to occupation may be given as in Table 1.

8. Becker and Hämäläinen: Skandin. Arch. f. Physiol., 1914, **31**, 198.
9. Carpenter: Jour. Biol. Chem., 1911, **9**, 231.

Chart 3 makes no allowance for the muscular activities involved in dressing and undressing, with other minor activities uncertain in quantity. Perhaps 200 calories should be added for these. If the man walks to and from his business, 1.1 calories for each pound of body weight moved 3 miles should be added.

METABOLISM OF WOMEN ENGAGED FOR EIGHT HOURS IN INDUSTRIAL PURSUITS

The basal metabolism of women is 37 calories per hour per square meter of body surface, or 93 per cent. of that of men, measured by the same standard. To the basal metabolism of a day was added 10 per cent. during a period of sixteen hours, representing the extra metabolism due to standing or sitting; and to this, again, was added the increment of energy necessary for the accomplishment of the mechanical work at hand.

The extra calories attributable to occupations may be given as in Table 2.

To the values given in the curve in Chart 4 (see page 825) may be added 150 calories for such movements as are involved in dressing and undressing, and other extra motions not definitely measurable. If the person walks to and from her place of employment, 1.1 calories should be added for each pound of body weight moved 3 miles.

It may be further remarked that the work of a hard working laundress could scarcely be accomplished by a woman 4 feet, 8 inches in height.

GENERAL APPLICATION OF THE RESULTS

The average height of an American woman is 5 feet, 4¼ inches, and of an American man is 5 feet, 8½ inches, according to the medico-acturial investigations of 1912. The corresponding figures may therefore be employed in calculating the food requirements of American communities. It is evident that the data given for boys, women and men do not cover the industrial or home economic situation; but, meager though they are, they afford the best available information.

REDUCTION IN THE FOOD REQUIREMENT

It must be remembered that the values given here are maximal values based on individuals in better than the average nutritive condition. It has been pointed out by Allen and Du Bois[10] that the basal requirement of energy in men may be largely reduced through emaciation. It has furthermore been shown for the dog by Anderson and Lusk[11] that when a given amount of work is to be done it is always accomplished at the expense of exactly the same amount of extra calories, no matter what the nutritive condition of the animal may be; it is the same on the thirteenth day of starvation as when the dog is fully nourished. Undoubtedly, the same principle applies to man. Thus, Taylor and Kellogg[12] write:

TABLE 2.—EXTRA CALORIES PER HOUR ATTRIBUTABLE TO OCCUPATIONS OF WOMEN

Occupation of Women	Extra Calories of Metabolism per Hour Due to Occupation
Seamstress, needle work	6
Typist, 50 words per minute	24
Seamstress, using sewing machine	57
Bookbinder	63
Housemaid (moderate work*)	81
Laundress (moderate work)	124
Housemaid (hard work*)	157
Laundress (hard work)	214

* Cleaning windows and floors, scouring knives, forks and spoons, scouring copper and iron pots.

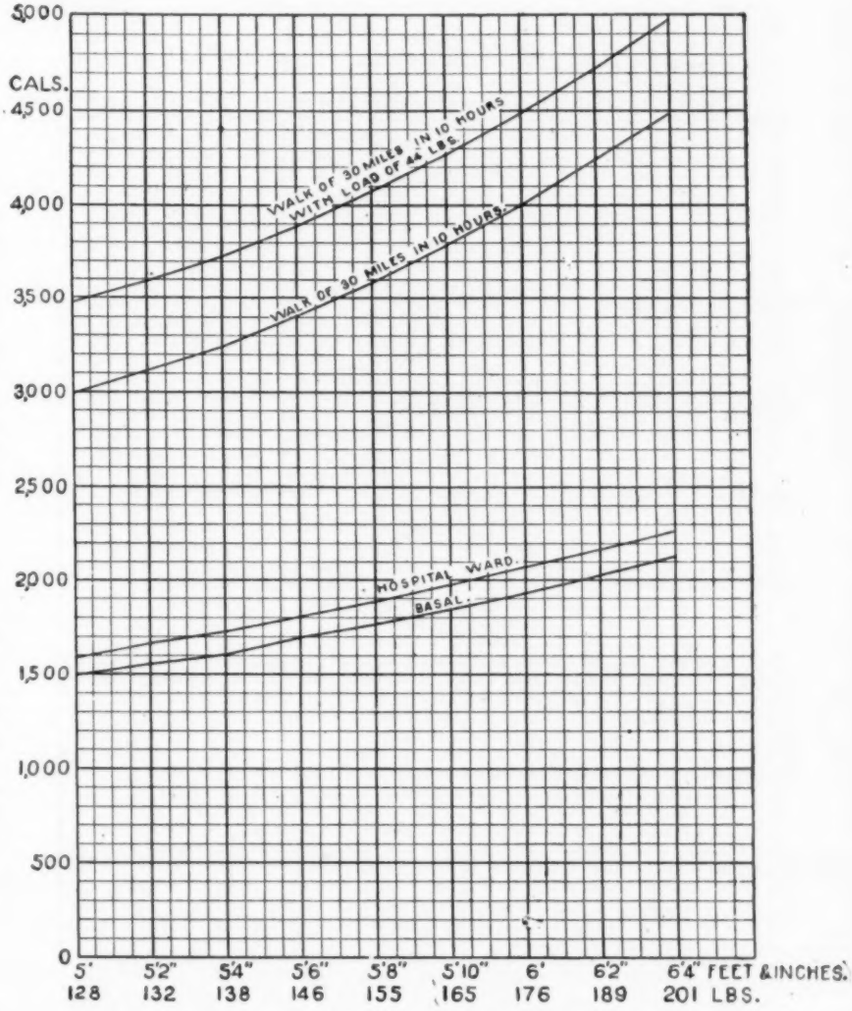

Chart 2.—Metabolism in calories per day of a soldier making a forced march of 30 miles at the rate of 3 miles per hour.

The industrial classes of Germany who have received not to exceed 2,000 calories per capita per day for nonworking individuals have lost weight; they are trained down hard like athletes. There was no evidence in Germany up to March, 1917, that the health of these individuals had suffered.

This method of saving calories is illustrated by the two instances of undernutrition in Table 3. Both were cited by Allen and Du Bois. The first of the two subjects had been investigated by Magnus-Levy.

It is evident, therefore, that one may reduce the basal requirement of energy by undernutrition, and

10. Allen, F. M., and Du Bois, E. F.: Metabolism and Treatment in Diabetes, Arch. Int. Med., June, 1916, p. 1010.
11. Anderson and Lusk: Jour. Biol. Chem., 1917, **32**, 421.
12. Taylor and Kellogg: The Food Problem, New York, The Macmillan Company, 1917, p. 90.

TABLE 3.—TWO INSTANCES OF UNDERNUTRITION

	Weight Pounds	Height Ft. In.	Basal Metabolism Calories	Calories per Hour per Sq. M. of Surface
Case 1:				
Original measurements ..	115	5—2	1,486	40.5
After undernutrition	84		1,077	33.0
Difference	31		409	
Case 2:				
Original measurements ..	163	6—2	1,920*	40.0
After undernutrition	101		1,032	25.4
Difference	62		888	

*Calculated from a surface area of 2 square meters on the basis of the height-weight formula, and 40 calories per hour per square meter of surface as the standard of normal nutrition.

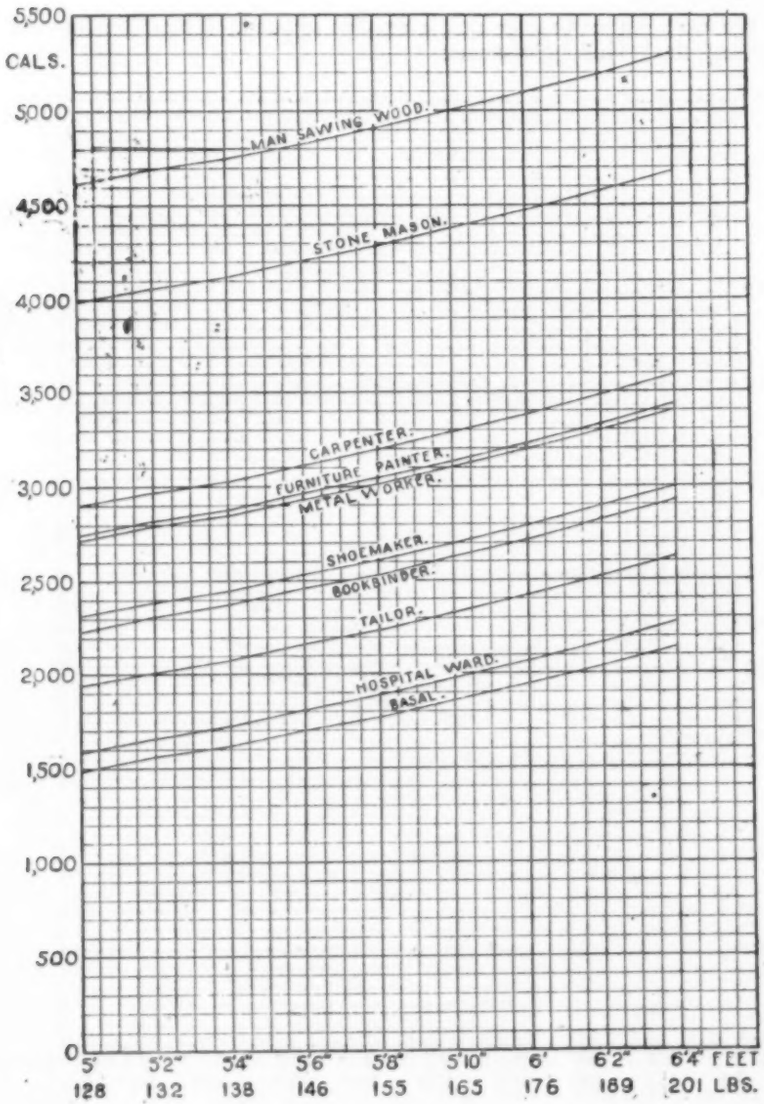

Chart 3.—Metabolism in calories per day of men engaged for eight hours in various industrial pursuits.

that this process may largely economize food, but that to accomplish a given amount of work a fixed amount of food-fuel is required, irrespective of the nutritive condition of the organism.[13] It may become necessary for Americans to "train down hard" as people in the warring nations of Europe are forced to do, and it is important to realize that this may be done without detriment to health. Certainly, the practice of habits of gluttony or of waste of food must be regarded as ethically abhorrent in days like these, when whole peoples are starving to death.

13. Anderson and Lusk: Proc. National Acad. Sc., 1917, 3, 386.

THE PRINCIPLES OF TREATMENT IN MERCURIC CHLORID POISONING

AN EXPERIMENTAL STUDY *

W. D. SANSUM, M.D.
CHICAGO

The passage through the body of very large quantities of water by sustained intravenous injections of glucose at supertolerant rates has been observed to result in a marked flushing out of urea, chlorids and other substances that are capable of excretion by way of the kidneys. It would seem rational to anticipate that this procedure might perhaps have clinical value in hastening the excretion of certain water soluble poisons. The idea of an actual flushing out of poisons by the production and maintenance of hyperdiuresis is an old one. It has been emphasized by M. H. Fischer,[1] who used particularly saline solutions, and by Turrettini,[2] who reported favorably on the use of intravenous glucose injections in mercuric chlorid poisoning. In connection with other work on the effects of sustained intravenous injections of sugar, salts, etc., at different rates, experiments have been made in this laboratory for the purpose of ascertaining the extent to which one may actually wash poisons of various sorts out of the body by this method.[3]

For experimental study, mercuric chlorid was selected as representative of the heavy metal group of poisons, and diphtheria toxin as representative of a certain type of bacterial poison. A report on the experiments with diphtheria toxin follows.[4]

In this series of experiments with mercuric chlorid poisoning, we have studied especially the influence of diuresis; and although no beneficial results were obtained, the study is reported with the belief that it is of clinical interest in showing clearly what can and what cannot be accomplished in the clinical handling of cases of mercuric chlorid poisoning, and to emphasize the uselessness of all known forms of eliminative treatment in cases in which the relatively small but uniformly fatal dose of mercuric chlorid has been once absorbed. The study establishes the minimum uniformly fatal dose of mercuric chlorid with greater sharpness than has been done before. It also brings out the probable reason for the frequent recovery of patients both treated and untreated who have taken

* From the Otho S. A. Sprague Memorial Institute, Laboratory of Clinical Research, Rush Medical College.

1. Fischer, M. H.: Edema and Nephritis, New York, John Wiley & Sons, 1915.

2. Turrettini: Rev. méd. de la Suisse romande, 1915, 35, 204.

3. A fourth detailed report covering phases of work outlined in a preliminary communication (Woodyatt, R. T.; Sansum, W. D., and Wilder, R. M.: Prolonged and Accurately Timed Intravenous Injections of Sugar, THE JOURNAL A. M. A., Dec. 11, 1915, p. 2067).

4. Sansum, W. D.: The Influence of Forced Diuresis in Experimental Poisoning with Diphtheria Toxin, THE JOURNAL A. M. A., to be published.

quantities of mercuric chlorid which far exceed the minimum lethal dose. It may be stated in the beginning that this study leads us to the belief that efforts to secure the elimination of this poison from the body, once it has been absorbed, are of very doubtful utility, and that the essential indication in the treatment of mercuric chlorid poisoning is to prevent the absorption of a fatal dose.

The glucose solutions, varying in strength from 18 to 54 per cent., were made by dissolving a chemically pure product prepared in this laboratory in freshly distilled water. In some of these experiments sufficient sodium chlorid, potassium chlorid and calcium chlorid were added to the glucose solutions to give them the salt content of Ringer's solution. Hypertonic salt solutions (Fischer's) also were used. The injections were made with a volumetric pump. Two pumps were used in some cases, the second to supply the fluid necessary to preserve the water balance. In these instances the discharge tubes were anastomosed to form a common delivery tube.

The mercuric solutions were 0.1 per cent. (1 mg. per cubic centimeter), dissolved in 0.8 per cent. sodium chlorid.

THE MINIMUM UNIFORMLY LETHAL DOSE OF MERCURIC CHLORID

When this poison is given by mouth, the fatal dose is found to be extremely variable and comparatively large, owing to many factors and especially those preventing uniformity of absorption (emesis, purgation, the character and amount of food contained in the alimentary tract, etc.). When given by this route, the mercuric chlorid, moreover, passes at the initial absorption rate to the liver, an organ that may differ greatly in its glycogen content and its power to retard the passage of poisons into the blood of the vena cava under varying physiologic conditions. Fantus,[5] working with rabbits, found that in unstarved animals the surely fatal dose by mouth was as high as 40 mg. per kilogram. When given subcutaneously, variations in the absorption time also appear to occur, owing in part to the fact that the tissues at the injection site become necrotic and slough. One of our dogs was given subcutaneously 5 mg. and another 10 mg. of mercuric chlorid per kilogram. Both animals lived, and in both the sites of injection became necrotic and sloughed. By this method, at any rate, we did not succeed in establishing a minimum uniformly lethal dose with sufficient sharpness for a satisfactory control.

To eliminate these uncertainties of absorption, etc., it was decided to determine the least uniformly fatal dose by intravenous injection, and in this way we found a small and very uniform value. Meyer and Gottlieb[6] state that 100 mg. is the minimum dose that has proved capable of causing death in human adults when taken by mouth (1.4 mg. per kilogram on a 70 kg. basis). American textbooks give a higher figure, namely, from 3 to 5 grains, which, for a body weight of 70 kg., would be equivalent to from 2.7 to 4.6 per kilogram of body weight.

The least uniformly fatal dose was determined by us in a series of nine dogs. Each of the first three received intravenously 3 mg. of mercuric chlorid per kilogram as 3 c.c. per kilogram of a 1:1,000 solution. The injections administered by means of the volumetric pump were always made to consume exactly one-half hour except when otherwise noted. Two of these animals lived, and the third died in seven days. Each of the second three then received 4 mg. per kilogram as before. All of these animals died, the duration of life being four, four and eight days, respectively. None of them developed anuria. The third three dogs each received 5 mg. per kilogram as before. All of these animals died after two, four and six days, respectively. All of them developed anuria. These fatal doses agree approximately with the accepted minimum lethal doses for adult human beings, and in such human cases the inference would be that the patients absorbed all of the dose swallowed. We therefore chose 4 mg. per kilogram as the minimum uniformly fatal dose; and when it was desired to produce anuria, 5 mg. per kilogram were given.

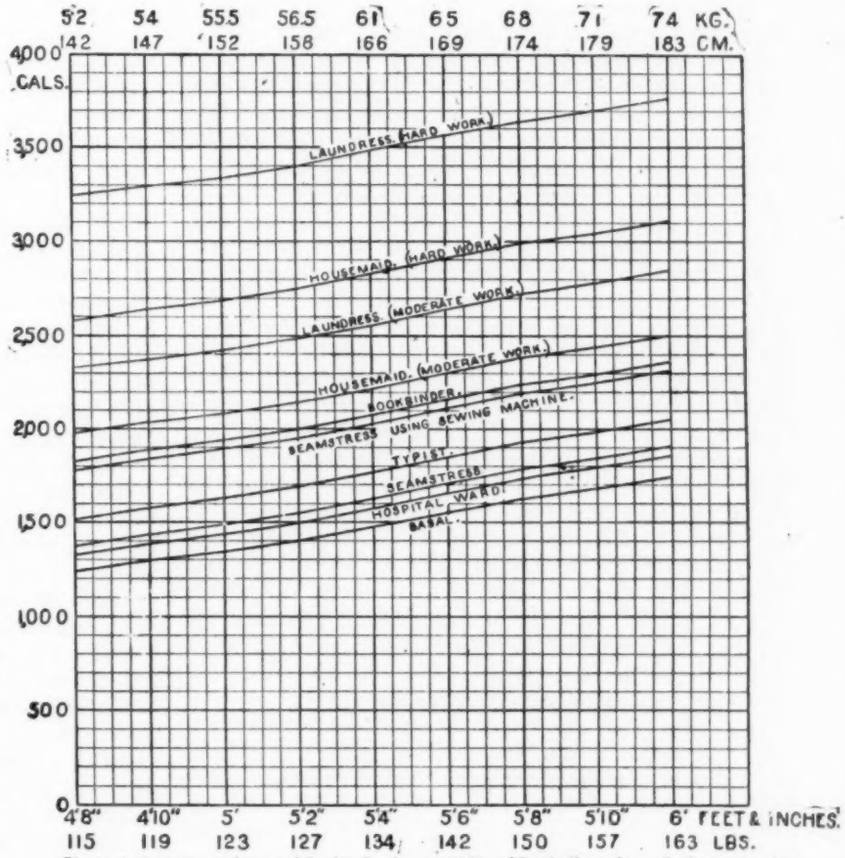

Chart 4 (accompanying article by Lusk, p. 821).—Metabolism in calories per day of women engaged for eight hours in various industrial pursuits.

EXPERIMENTS

Our first attempt was to determine whether it was possible to establish a flow of urine in an animal made anuric by the smallest dose of mercuric chlorid capable of producing this phenomenon. A dog was given intra-

5. Fantus, Bernard: Jour. Lab. and Clin. Med., 1916, **1**, 3; 1917, **2**, 3.

6. Meyer, H. H., and Gottlieb, R.: Die experimentelle Pharmakologie, Ed. 2, Berlin and Vienna, 1911, p. 463.

venously 5 mg. of mercuric chlorid per kilogram in the form of a 1:1,000 solution. Twenty-four hours later the dog had passed no urine, but 20 c.c. of thick albuminous urine were obtained from the bladder by catheter. To determine whether the animal was anuric, 200 c.c. of water were given by stomach tube, and four hours later 5 drops of urine were obtained from the bladder. Then 300 c.c. of 0.8 sodium chlorid were given, and two hours later, 3 or 4 drops of fluid were obtained from the bladder. This animal was considered, therefore, to present an anuria of true renal origin. Such a precaution as the foregoing was deemed necessary because in dogs there is often such a suppression of urine associated with the violent catharsis produced by the mercuric chlorid, however given, that the animal may become anuric not from the impaired kidney function but because the available water of the body is deficient.

A 54 per cent. glucose solution was then given intravenously at the uniform rate of 5.4 gm. of glucose per kilogram per hour for three hours, but only 10 c.c. of albuminous fluid containing a trace of glucose were obtained from the bladder. A normal animal weighing 10 kg. and receiving the same treatment will, as a rule, pass about 1,000 c.c. of urine. The dog continued to be anuric, and died on the seventh day.

The next experiment was undertaken to ascertain whether any protection could be afforded an animal if treated by copious diuresis immediately following the smallest uniformly fatal dose, that is, 4 mg. of mercuric chlorid per kilogram of body weight, the animal weighing 14.77 kg. This dose of 59 c.c. of a 1:1,000 solution was given intravenously at a uniform rate over a period of one hour, and immediately followed by the injection of 19.49 per cent. glucose solution at the rate of 5.4 gm. per kilogram per hour for three hours. During this time, the 14.77 kg. dog received 3,101 c.c. of fluid (1,251 c.c. of the glucose solution with one machine, and 1,850 c.c. of water with the second machine), and passed 2,805 c.c. of urine.[7] The dog continued to excrete urine, but died at the end of the third day. (The diuretic treatment itself does not seriously affect normal dogs).

The same experiment was repeated, with the difference that sufficient sodium chlorid, potassium chlorid and calcium chlorid were added to the glucose solution to give it the salt content of Ringer's solution, and Ringer's solution was used instead of water to preserve the water balance. During the three hours, the 14.77 kg. dog received 2,333 c.c. of fluid (1,353 c.c. of 18 per cent. glucose solution and 980 c.c. of Ringer's solution), and passed 2,125 c.c. of urine. The dog continued to excrete urine, but died in less than forty-eight hours in spite of the active kidney function.

The same experiment was repeated, except that Fischer's solution, as recommended by Weiss,[8] was used immediately following the intravenous poisoning. An 18.4 kg. dog received 30 c.c. of this solution per kilogram of body weight per hour for two hours. During this time it received 1,100 c.c., and the fluid output amounted to 1,000 c.c. of urine and 400 c.c. of liquid feces. (Fischer's solution administered intravenously in the foregoing amounts acts as a cathartic.) The dog continued to excrete urine, but died at the end of forty hours.

As these experiments proved entirely negative, so far as beneficial results were concerned, it was deemed futile to continue along this line. Within the past few years, however, a combination of sodium phosphite and sodium acetate has received some attention as a therapeutic agent. Carter[9] reported the successful treatment of many cases of mercuric chlorid poisoning by the oral administration of these salts, and explained their apparently beneficial results on the theory that the sodium phosphite reduced the mercuric chlorid in the tissues to the much less toxic mercurous chlorid (calomel), a reaction that is known to take place rapidly in vitro. Carter's reports[10] are very inadequate, consisting for the most part of mere statements of the number of cases successfully and unsuccessfully treated. But Fantus,[5] working with a large number of rabbits, found these salts of distinct therapeutic value when administered by mouth.

The intravenous injection of sodium phosphite would be the ideal way of bringing this salt into general contact with mercuric chlorid poisoned tissues. A series of experiments was therefore undertaken to determine whether any protection could be afforded in this manner. Carter recommended the use of these salts in the proportion of 10 gm. of the sodium phosphite to 6.6 gm. of the sodium acetate and held that, if the amount of mercuric chlorid taken is known, from five to ten times that amount of the sodium phosphite should be given.

Sodium acetate is a nontoxic substance in everyday use. Sodium phosphite was found by experiment to be nontoxic when administered intravenously in large doses. One dog received intravenously 57 and a second 200 mg. per kilogram of this salt with no apparent toxic symptoms.

One experiment was performed to test the detoxicating power of sodium phosphite in vitro. One gm. of sodium phosphite and 6.6 gm. of sodium acetate were added to 100 c.c. of a 1:1,000 solution of mercuric chlorid. The proportion of sodium phosphite to mercuric chlorid was thus 10 parts by weight of the former to 1 of the latter. A white precipitate of calomel soon formed. Of the filtrate, 10 c.c. per kilogram of body weight were given to a dog intravenously with no apparent toxic effects.

Two experiments were performed to determine whether the phosphite solution, when given intravenously immediately following the injection of mercuric chlorid, afforded any protection. The first dog, weighing 14.56 kg., received 58.24 c.c. (4 mg. per kilogram of a 1:1,000 mercuric chlorid solution) over a period of fifteen minutes, which injection was followed immediately by 116.48 c.c. of a solution containing 1 per cent. sodium phosphite and 0.66 per cent. sodium acetate over a period of thirty minutes. Thus twenty times as much sodium phosphite as mercuric chlorid was given. The urine, which amounted to 1,785 c.c in the first twenty-four hours, contained sodium phosphite. The dog continued to excrete urine, but died in five days with typical lesions. In this case the minimum uniformly lethal dose was given in fifteen

7. This diuresis in the case of a dog weighing 14.77 kg. corresponds to 1,900 c.c. per 10 kg. of body weight. It is stated in the first paragraph but one preceding that a normal 10 kg. dog receiving the same intravenous and glucose water treatment will, as a rule, pass only about 1,000 c.c. of urine. This dog passed nearly twice as much. The extra diuresis cannot be attributed to the extra water given with the mercuric chlorid, since this was only 40 c.c. per 10 kg. It is due rather to the diuretic effect of the mercury salt itself. The mercuric chlorid, unless given in too large doses, acts as a powerful diuretic.

8. Weiss, H. B.: A Method of Treatment of Mercuric Chlorid Poisoning, THE JOURNAL A. M. A., June 2, 1917, p. 1618.

9. Carter, T. A.: Chicago Med. Recorder, 1914, **36**, 444.

10. Carter, T. A.: Critic and Guide, 1915, p. 266.

minutes instead of the standard thirty minutes, in order not to delay the beginning of the treatment. Our experience would not indicate that variations in the time of injection between fifteen minutes and one hour affect the results.

The second dog, weighing 12.16 kg., received the same dose of mercuric chlorid per kilogram, followed by enough of the phosphite-acetate solution described above to introduce 35 parts by weight of the sodium phosphite to 1 of mercuric chlorid given. This was injected slowly over a period of three hours. The dog continued to excrete urine, but died at the end of four days.

Hall[11] has suggested the use of potassium iodid and quinin hydrochlorid as an antidote for mercuric chlorid poisoning, giving the formula in the accompanying tabulation:

HALL'S ANTIDOTE FOR MERCURIC CHLORID POISONING

	Gm.
Potassium iodid	3.00
Quinin hydrochlorid	1.60
Hydrochloric acid, dilute (10 per cent.)	2.00
Distilled water to	100.00

Such a solution will remove all of the mercury from an equal volume of a 1 per cent. mercuric chlorid solution. Barbour[12] gave intravenously to rabbits a solution similar to the foregoing in sufficient quantity to precipitate all of the mercury from one-half to one hour after having given intravenously from 2.5 to 5 mg. of mercuric chlorid per kilogram; but the animals died sooner than the controls, so that it would appear from Barbour's work that Hall's solution is no more effective in counteracting the effects of mercuric chlorid that has entered the general circulation than those which we have tested.

Another series of animal experiments was undertaken to determine whether the best known forms of alimentary medication afforded any protection following the intravenous poisoning with mercuric chlorid.

The first dog, weighing 8.64 kg., received 4 mg. of mercuric chlorid per kilogram of body weight as before. Carter's[10] antidote was then given my mouth in the proportions and amounts recommended by him, that is, 10 parts of sodium phosphite to 6.6 parts of sodium acetate, and 10 times as much sodium phosphite as mercuric chlorid given. Three such doses were given per day. This dog continued to excrete urine, but died in four days. A second dog, weighing 19.55 kg., was treated in the same way with similar results, continuing to pass urine and living four days. Toward the end of these experiments, both animals vomited parts of the phosphite solution, and to eliminate this possible source of error two rabbits were poisoned and given the same treatment. The first lived seven, and the second, six days. Neither became anuric.

Two dogs poisoned as before were given by mouth the sodium hypophosphite-hydrogen peroxid mixture recommended by Fantus.[5] Three doses were given per day, each dose consisting of 40 mg. of sodium hypophosphite and 2 c.c. hydrogen peroxid per kilogram of body weight. The first dog lived five days, and the second, six days. Both continued to excrete urine.

11. Hall, W. A.: Jour. Am. Pharm. Assn., 1915, **4**, 183.

12. Barbour, H. G.: Mercuric Chlorid Poisoning in Animals Treated Unsuccessfully by Parenteral Administration of Hall's New Antidote, THE JOURNAL A. M. A., Feb. 27, 1915, p. 736.

Two dogs were poisoned as before and given the Lambert and Patterson[13] treatment, with the sweating necessarily omitted. The reader is referred to their article for the details of this treatment. The essential points are repeated gastric and colonic lavage, diuretic potassium bitartrate sugar solutions by mouth, a continuous rectal drip of 0.8 sodium acetate solution, daily sweats, and albumin in the form of milk. One dog lived three, and the other, two days.

SUMMARY

The minimum uniformly lethal intravenous dose of mercuric chlorid in dogs was found to be 4 mg. per kilogram of body weight (1:1,000 solution injected uniformly during from fifteen to sixty minutes). It would appear that this dose has not heretofore been sharply defined; but it corresponds approximately to the smallest doses of mercuric chlorid which, according to standard textbooks, have been known to cause death in man. The dose of 4 mg. per kilogram uniformly failed to cause anuria. A larger dose, namely, 5 mg. per kilogram, was found necessary to produce the latter result.

In cases of anuria from experimental mercuric chlorid poisoning, all attempts to reestablish the flow of urine by intravenous administrations of strongly diuretic solutions failed.

In animals that had received the minimum uniformly lethal dose of mercuric chlorid, but in which the kidneys were still capable of functioning actively, no success was attained in efforts to save the dogs by copious systemic lavage by means of intravenous injections of highly diuretic sugar or salt and alkali solutions. In fact, it usually shortened life. Lambert and Patterson[13] used diuretics both orally and by rectum, supplemented by diaphoretic measures in the treatment of clinical cases of mercuric chlorid poisoning. They attached considerable importance to the diuresis and sweating. However, they combined with these the administration of albumin in the form of milk, frequent washings of the stomach, and colonic flushing, so that it would be impossible to judge from their data how much, if at all, the sweating and diuresis in themselves contributed to the success of their treatments. Moreover, none of the ten cases reported became anuric, which, in the light of the present experiments, would indicate that the quantity of mercuric chlorid that actually gained access to the tissues at large never in their cases greatly exceeded the minimum surely fatal dose, and might never have equaled it. The symptoms were those of a relatively mild grade of tissue poisoning, compatible with recovery without accelerated diuresis. It would appear as though the success of the treatment may have been due chiefly to the factors of delayed absorption and hastened elimination from the alimentary tract rather than the diuresis and sweating, although on the basis of the present experiments on dogs, no conclusion could be drawn as to the value of the sweating. Similar comments might be made concerning the method of treatment described by Weiss.[14]

13. Lambert, S. W., and Patterson, H. S.: Poisoning by Mercuric Chlorid and Its Treatment, Arch. Int. Med., November, 1915, p. 865.

14. Solutions which are diuretic are not infrequently cathartic as well. This applies to sodium or potassium acetate, lactose, and to a very marked degree to the sodium chlorid-sodium carbonate solutions used by Weiss, even when the latter are given intravenously. The chief channel of elimination of mercury, as with the salts of heavy metals in general, is by way of the bowel, and a priori reasoning would lead to the conclusion that relatively little of these substances can be made to pass out by way of the urine under any circumstances.

Dogs that had received by vein the minimum uniformly lethal doses of mercuric chlorid died in spite of intravenous injections of sodium acetate-sodium phosphite solutions, even when the latter were given immediately after the poison had been given, and when the weights of sodium phosphite were from twenty to thirty-five times as great as the weights of the mercuric chlorid administered. The sodium phosphite-sodium acetate therapy has proved of no value in counteracting or preventing the deleterious effects of intravenously administered mercuric chlorid. Dogs and rabbits that had received by vein the minimum uniformly lethal dose of mercuric chlorid died in spite of the use of the best known forms of alimentary medication.

CONCLUSIONS

1. There is no sound experimental basis for the belief that the promotion of free diuresis contributes materially to the chances of recovery in mercuric chlorid poisoning, and this phase of treatment should not be permitted to obscure that which is more essential.

2. Combined treatments which involve sweating, diuresis and increased elimination from the bowel probably owe their value chiefly to the latter effort.

3. It would appear in the light of the present study that when 4 mg. or more of mercuric chlorid per kilogram of body weight has entered the tissues at large, death regularly occurs, and that we have no adequate grounds for believing that death is preventable by any known form of treatment. Whereas, subsequent studies may add to our knowledge, it would appear that persons who have recovered from mercuric chlorid poisoning owe their lives to the fact that a lethal dose has never gained access to the extraportal circulation. Practical therapeutic efforts should be directed frankly toward the accomplishment of two things: (1) Mechanical removal of the poison from the lumen of the alimentary tract. (2) Antidoting the poison before it leaves the portal circuit, that is, particularly before absorption.[15]

15. Before the completion of the work described above a patient who had entered the Presbyterian Hospital on account of mercuric chlorid poisoning was treated at the request of Dr. Frank Billings, by means of intravenous injections of glucose and of hypertonic salt and alkali solutions (1.4 per cent. sodium chlorid in 0.3 per cent. sodium carbonate-Fischer), and also by renal decapsulation. The negative results of treatment paralleled those observed in animals. None of the methods restored a flow of urine, and the patient died on the seventh day.

Milk.—The commission appointed by the food administrator to study the cost of milk delivered in Chicago, and to fix the price to be paid to producers has made its report on a basis that makes the price of milk delivered to consumers at 12 cents a quart. By the arrangement of the health commissioner, a number of depots have been established where milk can be purchased without delivery at 10 cents a quart. After taking testimony at numerous hearings extending over several weeks, the commission fixed the price to be paid to producers. From October 1 to November 1, the milk producers arbitrarily fixed the price to the distributors at $3.42 and milk delivered retailed at 14 cents a quart. From November 1 to February, the price to distributors was $3.22. The price as fixed by the commission allowed the contention of the distributors as to the cost of delivering the milk and the reduction fell entirely on the producers. As a protest against being obliged to shoulder all the reduction, the producers in many instances refused to ship their milk and Chicago has been on a short supply for a week or more. A new commission is to be appointed by the local food administrator to consider the question of waste in delivery of milk, on account of the fact that many distributors cover the same territory.

SYSTEMATIC THERAPEUTIC EXERCISES IN THE MANAGEMENT OF THE PARALYSES IN HEMIPLEGIA

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In considering the treatment of cerebral hemiplegia, Thomas[1] states that "the paralyzed limbs should be rubbed, moved passively," and "when voluntary power begins to return, this should be encouraged by practice, and the patient should have regular gymnastic exercises." Church[2] says that "as soon as the apoplectic coma has passed away, gentle massage of the paralyzed side and exercise of all the paralyzed muscles by mild faradism should be instituted. . . As soon as there is any reappearance of voluntary motion the patient should be encouraged to exercise it. These measures are usually postponed to the end of ten days or a fortnight in fear that, by instituting them early, the brain lesion may in some way be increased." Then he suggests that the fear of greater injury is without reason, if the measures are properly carried out. These two statements from standard medical works illustrate the mode of treatment that has been advocated, and perhaps used, in most countries. Further statements would lead to the belief that some of the treatment is to be directed to the prevention of the deformity of contracture, and that the method of treatment does not insure a betterment in all cases. It has, in fact, been stated and is commonly assumed that in some cases there may be a persistent paralysis, and that if there is no return of voluntary movement within a period of two years, there is little or no chance that there will be improvement.

Much more hope is held out for the patient, and much greater detail of methods of treatment is given, by those who have developed and followed the Swedish system of therapeutic exercises. When these exercises are given in a proper, including systematic, manner the results are so encouraging that it seems probable they are not so well known as they should be, and that the advantages of gymnastics (with massage) are not fully recognized in the treatment of hemiplegic cases.[3] It is because of these two considerations that it appears well to describe some of the methods of dealing with hemiplegics, as taught and practiced by the leading masseurs and recommended by the foremost physicians in Sweden, and to give some indications of their value by the citation of some experimental work with artificially produced hemiplegia in monkeys, and of some brief case records.

KINDS AND USES OF MOVEMENTS

In order to make matters plain, it will be well to define the terms that are used and to describe the methods named. Movements may be divided into the two general classes of "active" and "passive." The active movements are those that are brought about by the volition or the effort of the patient. These movements are called "free" when they are made without any resistance or without the performance of work

1. Osler and McCrea: Modern Medicine, 1915, 5, 469.
2. Church and Peterson: Nervous and Mental Diseases, 1914, p. 223.
3. Attention has recently been called to this matter by Franz, S. I.; Scheetz, Mildred E., and Wilson, Anita A.: The Possibility of Recovery of Motor Function in Long Standing Hemiplegia, THE JOURNAL A. M. A., Dec. 18, 1915, p. 2150; also by Elliott, G. R., and Boorstein, S. W.: Orthopedic Treatment in Hemiplegics of Long Standing, ibid., July 1, 1916, p. 31.

beyond that of moving the part; but when the movements are resisted by an operator or masseur, they are called "duplicated" or "resistive." The passive movements, to which the term "massage" is more often applied in English speaking countries, are applied by the masseur or by the physician to the patient, the latter remaining inert, or in as relaxed a condition as is possible. These passive movements may be applied on the part (the muscles, for example) or with the part (by moving it). There are four different kinds of passive movements applied on or to the part: effleurage, petrissage, friction and tapotement.

Effleurage, or stroking, is performed by laying the palmar surface of the hand, or the thumb or the fingers, on the part that is to be treated, and making strokes centripetally with an amount of pressure that can be determined only by the amount of muscular contraction of the part or by venous stasis, or by any other condition that is to be dealt with. This process is believed to stimulate the venous and lymphatic flow, and to bring about relaxation of contracted muscles. In petrissage, the tip of the thumb, or the tips of the first three fingers, are employed to make circular and loosening movements. This kind of passive movement is used to loosen adhesions, to disperse infiltrations, and to promote the circulation in the part that is manipulated. When applied in a light way, it is thought that this procedure stimulates the part. Friction consists in grasping a muscle, for example, the biceps, and thoroughly kneading it between the fingers. This gives a great mechanical stimulus to the muscle, and stimulates the part similar to the process of petrissage; but a much larger area is taken care of, and the stimulation is more intense. A special form of friction is given to nerve trunks, by drawing the fingers sharply across the long axis of the nerve and at right angles to it. It has been demonstrated that this nerve friction can at times cause contractions of muscles, which will not react to electrical stimulation, and the application of the stimulus to the nerve, rather than to the muscle, brings about a greater contraction of the muscle when one is obtained. Apart from the immediate motor effects, this nerve stimulation also starts afferent processes, perhaps somewhat similar to those that are produced by muscular contraction, and in this way by reflex conduction the motor apparatus is also stimulated indirectly. In tapotement, the part that is to be treated is struck sharply again and again. The striking is usually done with the ulnar surface of both hands, the blows being made in quick succession, the motion coming from the carpal joints as in ordinary percussion, and the whole hand being held in slight ulnar flexion. The effect of tapotement is chiefly that of stimulating the muscles mechanically. It increases their irritability, and when slight nerve impulses come to them they are thrown into marked states of contraction. Nerve friction after tapotement of the muscles may bring about a clonic kind of muscular activity, which persists during the time the nerve is being stimulated.

Each of these types of passive movements has its use in the treatment of the paralyzed state. Effleurage is chiefly, but not exclusively, valuable in loosening the tight contraction of the muscles in the condition known as contracture, and in keeping certain muscles, such as the flexors, from getting into a state of contracture. The value of petrissage has already been mentioned. The use of friction is to increase the nutrition of muscles which, on account of disuse, are apt to atrophy, and to prevent or to overcome the atrophic tendency. When applied to the nerve it tends to increase its conductivity and to increase the mechanical irritability of the muscle. Tapotement also increases the irritability of the muscles, so that in cases in which only slight nerve impulses are being received these may have more motor effect than under ordinary circumstances. Friction in newly produced cases of paralysis should be applied to the extensor muscles of the arm and to those muscles of the leg which in old cases show the most lack of power or control, such as the peroneus. In those cases in which there are residual paralytic symptoms the friction should be directed against those muscles which cannot be moved, or which are not in a state of contracture, and those muscles, control of which is most important for the individual to acquire, for example, the extensors of the forearm, the peroneus, etc. In no case should friction be applied to the muscles that are in a state of contracture, and this, it should be remarked, is not distinctly specified in many neurologic textbooks that deal with the treatment of paralytic cases. In fact, if the statements quoted at the beginning of this article are read literally, they seem to indicate that massage should be used for *all* of the muscles of the paralyzed segments.[4]

When, however, we consider in detail the paralyses of apoplectic origin, we find that certain muscles are more involved than others; or, to put the matter in strict form, we may say that certain muscles are apt to get into a state of tonic or forceful contraction, and that others remain in a state of flaccid paralysis. Thus, in the upper extremity, the muscles which usually cannot be moved and which are flaccid are the lateral retractors of the arm, the supinators and extensors of the forearm, and the extensors of the fingers. In the lower extremity, the muscles chiefly affected are the adductors of the thigh, the flexors of the leg, and the dorsiflexors of the foot. In the upper extremity, contractures are found; some come early and some only after a considerable period according to the site of the lesion (cortical or subcortical). The contractures of the arm produce an adduction of the arm on the body, flexion at the elbow, wrist and fingers, and some pronation of the hand. In the leg, the knee is usually extended, the angle is dorsiflexed, and these two conditions with the accompanying inability to overcome them with the appropriate muscles bring about the outward swinging and dragging of the foot that characterizes the hemiplegic gait.

While these are the usual conditions to be found in hemiplegia, each case should be dealt with individually, for there are considerable differences in degree and distribution of the paralyzed muscles. At the same time, each muscle or muscle group should be considered in relation to its condition, for example, its tonicity. When these points are worked out, it will be simple to determine which muscles should be stimulated and which should have the treatment to bring about a relaxation. Thus, when there is a contraction, the muscles should be treated by effleurage of a very light form, and the corresponding antagonists should be exercised by friction and tapotement. The nerves to the relaxed muscles also should be stimulated by friction; but it must be kept in mind that too strong stim-

4. Mention will be made of this matter in one of the case reports.

ulation may be of no value, or it may even be harmful (in this respect there being a condition like that of Pflüger's law), since strong stimuli may not only decrease but also temporarily abolish nerve irritability. In the clinical cases that are described, the patients have been referred to me from time to time, usually by neurologists who have appreciated the necessity for the methods employed.

REPORT OF CASES

Case 1.—A man, aged 59, German, owner of a sanatorium with complete hydrotherapeutic outfit and with the facilities for massage and gymnastic exercises, referred to me while I was at Bad Oehenhausen, had an apoplectic stroke nine months previous to his visit to Bad Oehenhausen, and his physician had advised "general" massage and Swedish movements seven weeks after the cerebral accident. There treatments were carefully carried out for about seven months with no apparent good effect, and finally, in conformity with advice, he came to Bad Oehenhausen for treatment. Two days after his arrival, the patient was sent to me by the physician whom he had consulted. At that time there was a right-sided hemiplegia which was evidenced by the following symptoms: There were facial paralysis, drooling of saliva, poor speech, and atrophy of the outer part of the trapezius muscle at the shoulder; the biceps was strongly contracted, and likewise the flexors of the forearm; there was marked atrophy of the extensors of the forearm, and the leg was equally involved, there being a marked peroneal dragging of the foot. The voluntary motor ability of the patient was greatly restricted by the flaccid paralysis and by the contractures and atrophies.

The patient was treated in the manner that has been described above instead of by general massage, the effort being made toward getting the muscles that were atrophied into better condition, and toward loosening the contracted muscles that prevented the use of the arm and hand. The systematic exercises were given in such a manner as to prevent stimulation of the contracted muscles, but to bring about as much power as possible in the flaccid and atrophied muscles. The exercises were given daily, including Sunday, for three and one-half months, and during that time there resulted a great improvement. The facial muscles had improved in tone, the patient was able to control them to such an extent that saliva no longer drooled from his mouth, he could talk very well, although his speech was slow, and it was only on close observation that it could be determined that the muscles on the right side of the face did not have as good tone as those on the left, and that the right side could not be used with the same accuracy and rapidity as the left. The trapezius paralysis had apparently been entirely overcome and that muscle could be very well used for all the operations that it is normally used for. The contracture of the arm had largely disappeared, and the extent of the improvement in this respect was evidenced by the ability of the patient to make a complete extension of the forearm. While the hand had not completely recovered, it also had improved to such an extent that casual observation did not disclose a difference from the left. It should, however, be stated that the movements of the right hand and arm were much slower than those of the left, but this was not so obvious as to cause a visitor to remark it. The leg was so much improved that the patient could both flex and extend it, and the movements of abduction and adduction were performed perfectly, or almost perfectly. The peroneal lameness persisted to a slight extent, but it gave the impression of a peculiarity of walk rather than an actual paralysis.

This patient is a good example of the apparently poor effects of general massage, and the good effects that may be obtained when attention is directed to increasing the tone and the strength of those muscles that are flaccid and atrophied, and to reducing the contracture state in the muscles that are tightly contracted.

Case 2.—A German merchant had had an apoplectic stroke five years previous to the treatments that were given by me. For three years after the apoplexy he had received daily general massage for eight months of each year, and during the succeeding two years he had been given general massage three times a week. He took the treatments not in the hope of getting over the paralysis but solely because they gave him a general feeling of well-being. When first seen by me there was an evident left-sided paralysis, which involved the face as well as the arm and the leg. The patient's speech was poor, owing to the facial paralysis, the left arm was very much contracted, the forearm was bent on the upper arm, the arm was adducted, the fingers were flexed into the palm, the left side of the second layer of the scapula was atrophied, and the adductors of the leg were contracted. The patient could not abduct the arm or extend the forearm, nor could he flex the leg or extend it to full extent. Walking was impossible, and the patient was taken around in a wheel chair.

The patient was treated daily, excepting Sundays, with the special exercises that have been described, the flexors being stroked to bring about relaxation, but the extensors of the forearm and the other flaccid muscles being stimulated by friction and by tapotement, and the nerves of the flaccid muscles being stimulated with friction. At the end of three months, the arm segment had improved to such an extent that the patient was able to adduct it horizontally with the shoulder and to draw it forward so that he could touch the right shoulder with the knuckles of the left hand; but no improvement of the flexors of the forearm and the fingers had taken place up to that time. The leg improved to such an extent that he could flex and extend it almost to the limit, and the adductors of the thigh became considerably relaxed. Because of the improvement in both legs and in the left arm, the patient was at this time able to walk with the aid of a specially constructed pair of crutches.

Case 3.—A man, aged 56, was visiting a friend who was taking the "cure" at the spa. Five days after his arrival he had an apoplectic stroke while talking with friends. The stroke produced a right-sided hemiplegia which involved the face as well as the arm and leg. The patient was almost immediately referred to me because of the paralysis, and I began the systematic exercises at once. The patient did not talk and did not appear to understand what was said to him. His right arm was slightly flexed, and there was little tone in the muscles of the arm and the leg. The treatments were directed to those parts which in older cases of hemiplegia exhibit the "residual" paralysis. After daily exercises and massage for ten weeks the patient was apparently perfectly normal in voluntary control of the movements of the arm and leg. He could use both of these members as well as the corresponding ones on the unparalyzed side, and the movements in strength and in rapidity were as well executed as by a normal person. The only defect that could be determined was a slowing of motor speech. This may have been partly due to some sensory aphasia, an inability to take things in readily, or it may have been a real motor defect due to a slowness in coordination of the muscles used in phonation.

This case, it may be stated, is not a clear-cut example of the value of the systematic exercises, for there is the possibility that the paralysis would have disappeared without treatment. On the other hand, it should be said that seldom does the paralysis disappear so quickly, and it is reasonably certain that even though the paralytic condition might have passed away, the inactivity would have left a weakness of some duration. If it be assumed that the paralysis would have disappeared without treatment, the treatments may then be said to be helpful in the prevention of the weakness; if we assume that probably not all of the paralysis would have disappeared, then we should conclude that the treatments have prevented the long-continued paralysis. An interesting feature of the case

is that the treatments were begun almost immediately after the apopletic stroke, and the treatments were so graduated that there was benefit. There appears to be no good reason why suitable exercises may not be given within a day after the occurrence of an apoplectic paralysis.

CASE 4.—A retired professional man, aged 60, while abroad, had an apoplectic stroke with hemiplegia, and was cared for by a physician until he was able to return home. He had been given "general" massage by his nurse daily for about two months.

On his return to Washington he was sent to me by his physician. This was about ten weeks after the beginning of the paralysis. At that time it was found that his speech was slow, there was an obvious paralysis of the facial muscles on the right, the right arm and the leg showed muscular atrophy, and there were contractures, the forearm being tightly flexed on the arm. The patient could not carry out any movements with the arm, there was a peroneal lameness, and he could walk only when assisted and held up by attendants on both sides.

Daily treatments directed to the paralyzed muscles were given to the patient at a hotel at which the family resided. These were continued for three weeks. Because of the projected continued absence of his physician for the summer he was then sent to a hospital, where the treatments were continued for five weeks, but under protest from his new medical adviser, who recommended "general massage," and wished to insist on it. The treatments had been continued for about two months, and at the end of that time the patient could abduct and adduct his arm and use it to nearly the normal extent, but not with normal force. He was able to walk without difficulty, with one attendant supporting him on the lame side.

The patient was then sent North, and on his return it was not possible for me to continue his treatments. By direction of his physician, "general massage" was then given to him; but although I have seen the patient several times, it is apparent that no further improvement has taken place; in fact, there has been a retrogression, and this I attribute to the fact that the muscles that should not be massaged have been equally worked with those that should be given stimulating treatment.

This case illustrates two points of importance. The first is that general massage, by which I mean the rubbing and kneading of the muscles, is not beneficial to this class of patients, because the muscles which are contracted or which have a tendency to contracture should not be stimulated. They are already being stimulated by the efferent impulses coming from the spinal cord, and by the lack of inhibition which is probably normally exerted by the cerebrum. The second is that the physiology of the condition is not always appreciated by the attending physician, who has been taught and who has read that massage should be given, and who consequently wishes to insist that the flexors be massaged as well as the extensors. It is not the *quantity* of the massage which is of benefit, but the *quality*, the latter including the direction of the treatments to the muscles and nerves that need them most.

CASE 5.—Three years ago, a man at the age of 59 had a stroke with resulting hemiplegia on the right. From this he recovered to a great extent without treatment, but he was weak and "lame," and could not perform movements that required a great degree of accuracy. A year subsequent to the first stroke he had a second, which also left him with a right hemiplegia. He had been in bed for the following two years; but whenever his condition would permit, he was lifted from it daily and placed in a chair. At times also he has been carried out to a carriage or to an automobile and given a ride, but he has tended to slip off the seat. For the two years he had been given "general" massage by his nurses, and several neurologists who examined the patient said that nothing could be done for him, and that the paralysis as it existed would be permanent.

He was given special treatments directed to the paralyzed muscles for ten weeks, twice a week, with some improvement in his condition, and the patient was then sent to me. The examination revealed the following: The right side of the face was paralyzed, and saliva drooled from that corner of his mouth, especially when he made an effort. There was no reaction of the muscles when the nerves were stimulated. The muscles were somewhat atrophied, and he showed no voluntary control of most of them. His speech was slow and very poor, and only a few things that he attempted to say could be understood. There was a contraction of the right sternocleidomastoid, the right trapezius was very much atrophied, and the right pectoral was contracted. The right arm was contracted and flexed, with considerable shortening of the flexor muscles, the forearm was flexed on the arm at an angle of about 70 degrees, and the wrist on the forearm at an angle of about 160 degrees, with the fingers tightly flexed on the palm. There was only a little voluntary flexion or extension of the arm, and the patient could abduct it about 20 cm. from the body. Both legs were atrophied, and the feet were turned inward, the right more so than the left. There was some change in the articulations of the tarsal bones. There was no reaction of the muscles when they were stimulated. There was a strong contraction of the ileopsoas. The patient could not move himself to any appreciable extent in bed, and when he was moved by assistants he showed great fear that he would fall.

It was reported to me that the twenty special treatments that were given previous to those given by me had resulted in some slight improvement, which can be estimated by the betterment in the position of the arm at the beginning and end of the series. At the beginning the forearm was flexed on the arm at an angle of 55 degrees, and the hand on the forearm at an angle of 110 degrees; while at the end of the series there had been a straightening, respectively, to 70 and to 160 degrees. At the same time, while at the beginning he was unable to move the arm at all, he could lift the hand almost to the chin after the twenty treatments; and although the right foot could not be lifted at the beginning, it could later be brought up to touch the middle of the tibia of the left leg. At the beginning, also, stimulation of the muscles and nerves produced no reactions; but subsequently an occasional effect could be obtained from the peroneus, and usually from the extensors of the forearm; but the latter were not contracted when the nerve was vibrated.

Up to the present writing I have given the patient three treatments a week for eleven weeks. There has been a gradual improvement in the condition of the muscles of the paralyzed segments and in his voluntary control of them. Speech is slightly improved, there is some reaction of the facial muscles when they are stimulated, there is less drooling of saliva, and the patient can extend his tongue and carry it over to the right angle of the mouth. He can abduct the right arm to the level of the shoulder (about 90 degrees instead of about 30 as at the beginning), and he can draw the arm forward across the chest and touch his chin. With the aid of his left arm he is able to put his right hand on the top of his head. The pectoral muscle is now very slightly contracted, the sternocleidomastoid little, if any. He now lifts his right leg, flexes it, and can touch the knee cap of the left with the heel of the right. The left leg is less atrophied, and he flexes and extends it with good force. The patient is also able to move himself from the longitudinal position on the bed to the transverse position without any aid, and when he is assisted to a sitting position he can maintain it without help. He can return to the longitudinal bed position from the sitting position without assistance. He can also stand on the left leg for short periods when he is assisted.

From the therapeutic standpoint the case is not encouraging because everything that can be done for the patient by others is being done for him, and he has been relying on his wife, his physician, and his nurses to do everything. Because

of this he is deprived of the much needed effort to help himself; and since he has been petted so long he does not care to exert himself to the slightest degree, and he can be made to do so only by insistence that he help. It is also likely that if it were possible to give the patient more frequent treatments, some of the results would have been bettered, for by having only three a week there is time for some of the good effects to pass away between the individual treatments, and the cumulative effects are not so readily obtained.

COMMENT

These five cases illustrate very well that improvement, and in many cases a considerable amount of improvement, can be brought about in the condition of a hemiplegic if appropriate exercises are given to the involved muscles. They also show that "general" massage, as indicated in Cases 1, 2, 4 and 5, has not brought about such improvement, although it is reasonable to suppose that the promptness and the extent of this form of treatment could have demonstrated its efficacy if any existed. It should be remembered that the amount of special treatment that I gave these patients was much less than the amount of "general" massage that had been given to them. It may be remarked that the amount of improvement in four of the cases did not go to the extent of a complete recovery, and that Case 3 should not be considered in connection with the other four. With both of these remarks I am willing to agree; but with respect to the lack of a complete recovery, it should be borne in mind that in all cases the treatments did not extend over a sufficient time to show the full possibilities. Although small in amount, they have shown that much more can be done than with "general" massage, which is usually advocated, and they show that we have not reached the limit of possibility. Patient 1, who had been paralyzed for nine months, was almost completely "cured" by special treatments for three and one half months, although during the nine months he had not improved under "general" massage. Patient 2 improved under three months' treatment, although he had not improved under five years' "general" massage. Patient 4 improved in two months, although he had not improved in the preceding two months' treatment with "general" massage, and has deteriorated in the succeeding time when general massage has been given. Patient 5, who has received the equivalent of nine weeks' treatment, has improved, although in two years with "general" massage he had been getting worse in that the contracture state was being exaggerated and the muscle atrophy was increasing. In most cases the patient or his physician or his relatives, seeing the improvement that takes place, thinks this will continue by itself, and the patient is either given no treatment or is turned over to a cheaper operator, who again gives "general" massage; and since the proper physiologic efforts are not made, there is a retardation or a stopping of the improvement. This is the same as others have found, and is the same condition encountered with other kinds of chronic cases. It is unreasonable to suppose that the treatments for two or three months will bring about a complete recovery in those who have had the paralysis for some time. It is well known that if an athlete ceases to exercise for a time, it is difficult, most frequently impossible, for him to return to his former level of ability, even though he practice for a considerable period of time. At the same time it is well recognized that after a certain age the adaptability decreases, and this lowering of the individual's capacity for new adjustments is probably both nervous and muscular. The results that have been obtained do indicate that a considerable amount of voluntary control follows the treatment of the paralyzed muscles and their nerves. It should also be mentioned that the contracture is overcome; and although this is a matter more of cosmetic interest, it is not unimportant that the deformity be improved.

It might also be remarked that we do not know, but can only estimate from the combined clinical symptoms, how extensive the cerebral lesions in these cases were, or what special parts of the brain have been destroyed, and that only the examination of the brains will show the extent and the limits of the destructions. Although this criticism has actually been made, it appears to be forgotten that competent physicians, and especially neurologists, can estimate quite closely, and it is possible to predict within a fair degree of certainty that in the cerebral paralyses either the cortical motor area or the motor fibers have been destroyed. The durations of the paralysis in Cases 1, 2 and 5 previous to the treatments are indications that the conditions were of the nature of residual defects, and that if treatments had not been instituted the motor deficiencies would have persisted. As far, therefore, as this criticism is concerned, I need only say that it is unjust with respect to probability, and furthermore, from the patient's standpoint it makes little difference about the nature of the lesion if an apparently permanent defect can be overcome, and the imperfection give place to a more normal state. It may be necessary to know the exact location, the degree, and the extent of the lesions if we wish to translate the results into terms of a hypothesis; but this can be done best by a suitable series of experiments on animals, or only after the accumulation of numerous cases of recovered hemiplegia. The experiments on animals have been carried out, and the results of the series will be briefly cited[5]:

REPORT OF EXPERIMENTS

EXPERIMENT 1.—A monkey had the left motor cortex cauterized with an electric thermocautery, which produced a right hemiplegia. The left arm was strapped to the body so that it could not be used and so that the animal would be compelled to use the right. At the same time the extensor muscles of the right arm and the arm nerves were stimulated by friction. The animal was also held by its strap and the right hand was struck by another piece of strap. This made the animal attempt to escape the irritation, and although at first the right arm could not be moved away from the irritating stimulus, in a few days the monkey was able to draw away the hand and also to grasp, but with little power, the irritating strap. At the end of two weeks the animal could use its arm and leg very well, and three weeks after the cortical destruction it could pick small pieces of food from the floor, it could climb and walk, and showed in the paralyzed segments no obvious incoordination. A week after it had recovered the use of the right arm and leg the right motor cortex was destroyed in the same manner as the left. This produced a complete left hemiplegia. No treatment was given to the animal for this paralysis; it was permitted to recover by itself if it could, and to date (at the end of six months) the paralysis of the arm has persisted, although there is considerable recovery in the leg segment.

5. The results of these experiments will be reported in greater detail in a forthcoming paper with S. I. Franz. The monkeys used in the experiments were supplied to Dr. Franz through a grant to him, and acknowledgment of the assistance of the Carnegie Institution in this regard is here made.

EXPERIMENT 2.—A monkey had the left motor cortex cauterized, June 2, producing a complete right hemiplegia. The animal was given "general" massage to the paralyzed limbs, and all the muscles were thoroughly kneaded daily. This treatment was carried out for twenty-six days, and at the end of that time the animal used the left arm exclusively. The right hand showed marked wrist drop; there was some possibility of flexion and extension, but there was little strength. The right leg also showed little improvement. There was a dragging of the foot when the animal walked or crawled. Four weeks after the first operation, the right motor cortex was cauterized. The right arm was also bound to the body of the animal, and the nerves and muscles of the left arm and leg were given the special treatments. This was continued about four weeks, at the end of which time the movements on the left could not be said to differ in any respect from those of a normal animal. Improvement on the right has continued, and that side is almost well; but the left hand is used more frequently than the right in taking food, etc.

EXPERIMENT 3.—The left motor cortex of a monkey was cauterized, June 2, resulting in a right hemiplegia. The left arm was strapped to the body of the monkey and its movements were prevented, but no other kind of treatment was given. At the end of four weeks, the amount of recovery was slight. Some movement of the right arm and leg was possible, but there was marked incoordination and incompetence. After the four weeks of *laissez faire* management, the muscles and nerves of the right side were stimulated and the treatments continued for four weeks. At the end of that time the right arm and leg had regained their normal power and accuracy. After the recovery from the right hemiplegia, a left hemiplegia was produced in a similar manner. Following this operation the left side was given "general" massage without special attention to the individual muscles and nerves. The animal continued to use its right arm almost exclusively, although after a few months both were used, and they can be used together when necessary. The animal now climbs and jumps, but its movements, especially of the left hand and arm, are awkward. It holds its food awkwardly, and does not carry it full way to the mouth, but the head is inclined to meet the food as it is brought upward by the hand, usually the right.

EXPERIMENT 4.—A monkey had the left precentral area cauterized, July 25. A typical right hemiplegia resulted. The movements of the left arm were restricted by tight bandaging, and the animal was given special treatments such as have been described. The recovery of the right side was rapid, and after three weeks it was not possible to detect any difference in motor capacity for the two sides of the body. The animal was shipped North, but developed pneumonia and died in three days. The brain showed a very extensive lesion involving the left motor cortex.

COMMENT

It should be pointed out that the results which have been described differ in at least one respect from those of investigators who have previously produced experimental hemiplegia in monkeys. This is the time of the recovery. Previous investigators have shown that if a monkey is paralyzed by the destruction of the motor cortex, recovery takes place "spontaneously." But the period for the recovery is one of months, and is well illustrated by the results of the second part of Experiment 1, in which at the end of six months the monkey has not fully recovered the use of the left hand and leg. The present work shows that the period of recovery may be much shortened and that the full return of voluntary control may take place in a few weeks, if suitable stimulating exercises are given.

The results of the experiments on the artificially paralyzed monkeys may be thus summarized: They show that (1) very little improvement takes place if the animals are given no treatment; (2) when "general" massage is used there may be some improvement, perhaps more than without treatment, but not very extensive, and (3) when the therapeutic attack is directed to specific muscles and nerves, the recovery is rapid and complete. These results are almost directly in accord with those which have been obtained with the human cases of hemiplegia which have been cited; but the rapidity and completeness of the improvement in the animals may be the result of different inherent qualities of the nervous system. It has already been pointed out that there is an almost complete recovery of the monkey after the destruction of the motor area or of the pyramidal fibers, but this recovery is very slow if the animal does not receive treatment. In the human cases, on the other hand, it has been believed that a paralysis which is not appropriately treated is not followed by recovery. Perhaps it would be more accurate to say that at present we are ignorant of the possibility of spontaneous recovery in human paralytics. One reason may be that the occurrence of the contracture which is an almost constant phenomenon may help to prevent or to mask the spontaneous recovery in man, and, secondly, the correlation of the anatomic data with the clinical symptoms has frequently been made without a sufficiently exact histologic knowledge of the destroyed area. If we are willing to conclude that recovery of voluntary motor function in man may take place after the destruction of the precentral cortex or of the pyramidal fibers, as is indicated in the records of the present series of cases, as well as by those reported by Franz, Scheetz and Wilson, and by Elliott and Boorstein, there appears to be no cogent theoretical reason why we must assume that some spontaneous recovery does not take place. It may be that there is no difference in kind but only a difference in degree between man and the monkey and other animals in this respect, and that our assumptions regarding the necessity for continued paralysis are not well founded.

From the work reported, I believe that every case of cerebral paralysis should be given the special treatments that have been found successful, and that we should give to every patient the fullest opportunity for betterment. It is too soon to predict with certainty how much improvement will result in any individual case; but the success noted in the cases that have been cited here and in the other cases that have been reported warrants the belief that the systematic effort of the physician should be directed to the alleviation of the distressing condition, which in the past has all too frequently been left for spontaneous recovery. It may be that further study will show that some patients will progress to a certain point, others may go to a point at which there is almost complete return of function, and others may show no obvious benefit. Further work is necessary for the differentiation of cases; but the facts at hand hold hope that many, probably most, perhaps all, cases of cerebral paralysis may be relieved; and even though the improvement may not extend to the ability to perform all kinds of finely coordinated movements, the prevention or the cure of the deformity of contracture, and the therapeutic production of even gross movements, are ends not to be despised, since they make the patient happier and less helpless.

THE TECHNIC FOR SEALING MEDICATION IN THE URETHRAL CANAL

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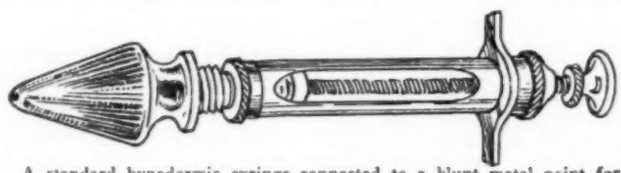
The advantages of prolonged applications of suitable remedies to inflamed mucous surfaces are well known. As a method of securing these advantages as soon as the treatment of a new case of urethritis is begun, and as a prophylactic measure, we have sealed medicament in the urethral canal with collodion. So satisfactory have been our results in the past twelve years that we desire to describe briefly the technic employed and the indications for its use.

TECHNIC

The patient should be placed in a reclining posture. The penis should be washed and dried, then surrounded with a sterile towel. A syringe holding 25 minims is used to inject this amount of medicament into the urethra. A larger amount does not seem to give any better results and is more likely not to be held in the urethra for the necessary time. Next, the canal is compressed with the left hand while the meatus is dried. Collodion is then applied with a camel's hair brush over the meatus and the glans penis for one-fourth inch around the meatus. The compression of the urethra should continue for about five minutes until the collodion is thoroughly dry and feels hard to the touch. It is important to use plain collodion, U. S. P., 1910, which contains no castor oil nor balsams and which feels hard when it dries. No cotton should be placed over the meatus, as it will not hold well and is unnecessary. When the collodion is thoroughly dried, the urethra should be released and a condom containing a small amount of absorbent cotton should be placed on the penis to protect the patient's clothing, in case the collodion should break and allow the escape of the medicament sealed in the urethra.



A standard hypodermic syringe connected to a blunt metal point for injecting the medicament into the urethra.

The patient, who should empty his bladder just before the treatment is applied, should be told not to drink anything for a few hours and to allow the drug to stay in the urethra four or five hours, if he is not compelled to urinate before this time has elapsed. When he wishes to void, the anterior part of the urethra should be compressed and pressure applied over the collodion, causing it to break at some point that affords a line of cleavage by which the collodion may then be pulled off.

After allowing the escape of the medicament, the patient should drink freely of water for the remainder of the day, so as to flush the urethra with bland, unirritating urine. The following morning very little water or other liquids should be taken, in order to prevent a distended bladder from allowing the medicament to stay in the urethra for the full time.

The treatments may be repeated once a day for five days if conditions are favorable. If the discharge continues or increases, or if organisms can be found in the secretion on the third or fourth day, it may be taken to mean that the germs have extended to a point not reached by the medicament and that this method should be replaced by the usual treatment.

INDICATIONS

The chief indications for this treatment of sealing the medicament in the urethra are (1) fresh infections and (2) prophylaxis.

Patients should be encouraged to report and have a microscopic examination made as soon as the discharge appears. If gonococci are found, the treatment should be started at once. The best results come when we begin on the first day. A very large percentage of such patients can be cured within five days. The prognosis becomes less favorable as the duration of the infection lengthens.

Sexual intercourse during the period of incubation reduces the chance for a prompt cure about 50 per cent. We cannot hope for a good result when injections and instrumentation have carried the infection deeper than the part retaining the medicament. Nor can we hope for prompt results if there is much swelling of the meatus or foreskin, or if the follicles along the urethra are palpable. Other infections than gonococcic respond equally well to treatment if they are recently acquired, although they are more likely to be deeply seated and are, perhaps, recrudescences brought on by the sexual intercourse at the time at which the patient thought the trouble was contracted. No special advantages are claimed for this treatment except in fresh infections. The surgeon, however, should practice the "sealing-in" process on patients with chronic disorders until he has acquired the knack of carrying out a satisfactory technic.

Our experience with this treatment as a prophylactic measure applied within the first forty-eight hours after exposure has been most satisfactory. We have not yet seen a patient develop gonorrhea who had it employed within this time. In the Army it should have a wide field of usefulness, as it can be applied at a later time than the remedies now in use. Only one treatment is required for prophylaxis.

This method has the advantage of medicating the anterior urethra to the meatus, whereas, when clamps are employed to retain medication in the urethra, the medicament does not reach the urethra anterior to the clamps, and the infection continues to be active.

The solution we usually employ is argyrol, 5 per cent. Stronger solutions are unnecessary.

SUMMARY

Our twelve years of experience with this method of treating early urethral infections leads us to assert that it is more effective than the conventional methods, also safer, for when we fail to obtain a prompt cure, no harm is done. In fact, the disease seems to run a milder course when the treatment is started by sealing the medicament in the urethra. The urethritis is not intensified, nor are strictures ever caused by the treatment.

We repeat that as a prophylactic measure we have never seen it fail when a treatment was given within the first two days of the infection.

THE CAUSE OF MUSCULAR ATROPHY FOLLOWING NERVE SECTION

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The nervous system is held to exert a "trophic influence" over the tissues of the body. In proof of this alleged influence, it is pointed out that pathologic changes occur in many tissues as the result of injuries to nerves or to the spinal cord. The pathologic changes usually cited are herpes zoster, the Charcot joint, ulceration of the cornea in lesions of the fifth nerve, bronchopneumonia after section of the vagi, decubitus, osteoporosis, and muscular atrophy. Already evidence has accumulated to show that some of these changes are not due to a trophic influence of the nerve; for example, the formation of vesicles on the skin in herpes zoster is now definitely known to be due to inflammatory changes in the dorsal roots. Phemister has recently argued that the alleged trophic changes in Charcot's joint are due to destructive changes in the bone as a result of the loss of sensation in the joint. The ulceration of the cornea in lesions of the fifth nerve is more probably due to the absence of sensation, which abolishes the reflex cleansing of the cornea by movements of the lids. Double section of the vagi leads to a fatal bronchopneumonia. Here again the result is due, not to a trophic influence of these nerves, but to the abolition of the coughing reflex. Even in the bone, pathologic changes have been described, supposedly due to nerve lesions. Von Leyden and Grumnach[1] report osteoporosis as a consequence of nerve lesions. Their findings were not confirmed, however, by Levy-Dorn and Fürnrohr. Most striking of all the alleged examples of the trophic power of nerves is the wasting of the skeletal muscles, after destruction of the anterior horn cells or section of the motor nerves. It is with this phenomenon that my report is concerned. I shall attempt to show that the wasting of the muscles is not due to the cutting off of a supposititious influence, but rather it is due to an incessant fibrillar activity of the muscles, which begins from three to six days after nerve section and persists until the regeneration of the nerve.

This peculiar fibrillar contraction was first described by Schiff[2] in 1851, although the significance of it as the cause of muscle atrophy was not, apparently, appreciated by him. Schiff's observation was made in the course of a study of the movements of the tongue following a section of the hypoglossal nerve on one side. In his article on the paralysis of the tongue in dogs, Schiff describes the movements of the muscle fibers of the paralyzed side in these words: "It is generally assumed that a muscle which is separated from its nerve center is in a state of most complete rest and inactivity, if external stimuli accidentally act on it. This is not true. I will show, on the contrary, that very soon a long period begins in which the individual muscle bundles take on automatic, rhythmic contractions." For three to five days after the operation, the tongue is quite still. Then:

> There is a continuous rise and fall, a weaving and waving, a bubbling and seething, a flickering and glittering of the individual moving parts, whereas the unparalyzed side remains motionless (Da ist ein fortwährendes Heben und Sinken, ein Wühlen und Wogen, ein Wallen und Weben, ein Flimmer and Funkeln der einzelnen bewegten Theile, während die nicht gelähmte Seite unbewegt daliegt).

Schiff himself did not connect this striking fact with the atrophy of the muscle. Although his observation has many times been quoted, the behavior of muscle fibers after nerve section is not generally known. Recently, Langley and Kato[3] have repeated the observations of Schiff. They worked with rabbits and cats. The tibial nerve was cut on both sides. Their observations may be quoted in their own words:

> On the fourth or fifth day spontaneous twitchings begin; they increase in rate and extent for about a fortnight and continue up to seventy-one days, the longest period observed. The degree of fibrillation varies in different parts of the denervated muscle [after section of the tibial nerve]; it occurs both in white and red muscle. When well developed, the muscle presents a continuously quivering surface; this is best seen when the surface is well moistened with warm Ringer's fluid. When there is but little fluid, the fibrillation appears as short depressions, occurring now here, now there, on the surface. The contractions of any one fiber have a regular rhythm. The fibrillation is seen only when the muscle is looked at from certain angles, and its distinctness varies with the angle.

RESULTS OF EXPERIMENTS

My own experiments were performed on dogs. The facial, the hypoglossus and the tibial nerves in certain animals were cut. Of these nerves, the hypoglossus is the most satisfactory for this experiment, for the reason that the fibrillation can be observed directly in the tongue, either on the dorsal surface or underneath. Where the muscle is covered with skin, it is impossible to see the movements. In order to demonstrate the fact in the gastrocnemius, it is necessary to expose the surface of the muscle by a supplementary operation. All operations were performed under ether anesthesia. A section of the nerve 1 cm. in length was removed.

In my experiments, the contractions first appear on the fourth day after the operation. Although there is some slight difference among animals, the essential phenomenon is this: About the third day, a fine, tremor-like movement is seen underneath the tip of the tongue on the operated side. When the tongue is moist, the movement is more apparent. At the end of seven days, more marked, rhythmic contractions make their appearance on the dorsal surface of the tongue at the tip. As time goes on the fibrillation spreads toward the root of the tongue. In some animals, a wormlike movement, due to the contraction of large muscle bundles, can be seen on the dorsum of the tongue near the midline. The rate of movement is from ten to twenty times a second. Although I have not been able to time the period of the contractions in any one muscle fiber, casual observation seems to indicate that the movement is incessant. From eight to twenty days after the operation, the mucous membrane on the dorsum begins to show folds and fissures, owing to a shrinkage in the volume of one-half the tongue. The loss in the substance of the tongue can be determined easily by palpation. The tip and lateral margin of the tongue become very thin and fimbriated. The coarser fascicular contractions

1. Von Leyden, E., and Grumnach, E.: Die Roentgenstrahlen im Dienste der Rückenmarkskrankheiten, Arch. f. Psychiat., 1903, **37**, 188.
2. Schiff, Moritz: Ueber motorische Lähmung der Zunge, Arch. f. Physiol. Heilk., 1851, **10**, 587.
3. Langley, J. N., and Kato, T.: The Physiological Action of Physostigmine and Its Action on Denervated Skeletal Muscle, Jour. Physiol., 1915, **49**, 410-431.

gradually disappear and, as the process of regeneration goes on, the fine tremor diminishes, first in the region about the base of the tongue and finally at the tip. There seems to be an exact parallelism between the appearance of the contractions and the wasting of the muscle, and between the disappearance of the contractions and the return of voluntary control. As yet I have had no animal under observation for more than 101 days. One animal observed for this length of time still shows slight fibrillar movements, marked atrophy and only slight voluntary control of the paralyzed side.

THEORIES OF MUSCULAR ATROPHY

In attempting an interpretation of this phenomenon, I shall find it necessary to consider the theories which have been formulated to explain the atrophy of muscle after nerve section.

1. The theory of a trophic influence of nerves on muscles is sometimes stated in such a way as to imply that there are (*a*) special trophic fibers contained within the nerve trunks of the spinal nerves; by some writers it is held that (*b*) there is a special kind of nerve impulse which regulates the nutrition of the muscle. Aside from the general fact that muscle wastes after the section of its motor nerve, there is no physiologic evidence for either the special trophic fiber or the special trophic nerve impulse.

2. On the assumption of continuity of substance of nerve and muscle tissue, the section of a part of this system might explain the atrophy which takes place in another part. Against this view is the fact that the histologic evidence shows that the nerve fibrils are separate and distinct from the muscle cells.

3. There remains the hypothesis that muscular atrophy is due to fatigue caused by fibrillar contractions, which have been described and which will be demonstrated. That the overaction of muscle may lead to a shrinkage in volume is a well attested fact. Furthermore, it may be pointed out that the specific gravity of fatigued muscles is less than the specific gravity of normal resting muscles. Also the specific gravity of atrophied muscles is less than the specific gravity of normal resting muscles.

In the clinical literature of poliomyelitis, I have been able to find only one reference to the fibrillar and fascicular contractions of the atrophied muscle. Hoffmann[4] describes what he calls a myokymie in certain old cases of poliomyelitis.

> Those leg muscles which have not wholly atrophied, show a continuous fibrillar and fascicular twitching, which in the thigh muscles simulates a muscle surging, with a twitching of the bundles at intervals; this muscle unrest is also present in the abdominal muscles (myokymie) (Die nicht geschwundenen muskeln der Beine sind Sitz unaufhörlich sich abspielender fibrillärer und fasciculärer Zuckungen die an den Oberschenkeln besonders das Bild des Muskelwogens geben, dazwischen auch stärkere Bündelzuckungen; diese Muskelunruhe besteht ferner am Abdomen [myokymie].

Rosenow, Towne and Wheeler[5] described fibrillar contractions in the limbs of rabbits experimentally inoculated with Rosenow's organism of anterior poliomyelitis. "The onset of later paralysis, especially in rabbits, was sometimes preceded by a fine tremor or even definite twitching of the muscles, which later became flaccid." Similar fibrillar contractions have been observed in certain cases of central neuritis as well as in progressive muscular atrophy and amyotrophic lateral sclerosis.

25 East Washington Street.

4. Hoffmann, J.: Ueber eine Epidemie von Poliomyelitis anterior acuta in der Umgebung Heidelbergs im Sommer und Herbst 1908 und bemerkenswerte Beobachtungen aus früheren Jahren, Deutsch. Ztschr. f. Nervenh., 1909-1910, **38**, 146-166.

5. Rosenow, E. C.; Towne, E. B., and Wheeler, G. W.: The Etiology of Epidemic Poliomyelitis, THE JOURNAL A. M. A., Oct. 21, 1916, p. 1202.

PNEUMOCOCCUS TYPE DETERMINATION BY AVERY'S CULTURAL METHOD

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Since the publication of Avery's[1] work on a rapid cultural method for the determination of types of pneumococcus in sputum from cases of lobar pneumonia, the diagnostic laboratory of the Massachusetts State Department of Health has used this method together with the method of mouse inoculation.

The specimens of sputum received are from hospitals and private cases in Boston. The technic employed by us is as follows: One c.c. of sputum is washed and ground in a sterile mortar with approximately 2 c.c. of broth, 1 c.c. of the emulsion is inoculated into a mouse, and the remaining cubic centimeter is inoculated into 4 c.c. of blood glucose broth in a centrifuge tube. For the mouse test, the method outlined by Blake[2] is used. For the cultural test, Avery's method is followed. The broth cultures are examined from time to time, and when pneumococci are abundant the precipitin test is made. The time for abundant growth varies from four to eight hours.

From a comparison of forty-eight specimens examined by both methods, we obtained checks on forty-three specimens.

FINDINGS IN COMPARATIVE TESTS

	Cultural Method	Mouse Inoculation
Type I	7	8
Type II	10	12
Type III	3	5
Type IV	28	23

Five specimens that were Type IV, according to the cultural method, were distributed among Types I, II and III.

The specimens received at this laboratory are often contaminated with saliva; but it is usually impossible to get second specimens without considerable delay, and tests are made with the ones received, though they often appear unsatisfactory. The fact that we do not have any control over the taking of specimens may account for our somewhat less successful results with the cultural method than those obtained by Avery. However, our results have been sufficiently satisfactory for us to decide to use this method when mice are not obtainable, rather than to stop the work entirely.

1. Avery, O. T.: Determination of Types of Pneumococcus in Lobar Pneumonia, THE JOURNAL A. M. A., Jan. 5, 1918, p. 17.

2. Blake, F. G.: Methods for the Determination of Pneumococcus Types, Jour. Exper. Med., 1917, **26**, 67.

Therapeutic Overdoing.—In the department of therapeutics overdoing is wrongdoing; activity here to the extent of harm is the reproach of medicine.—W. B. Konkle, M.D.

PAIN IN ACTIVE PATHOLOGIC PROCESSES IN STOMACH OR DUODENUM

GASTRIC AND DUODENAL CONTRACTIONS AS THE DIRECT CAUSE

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That the question of genesis of gastric pain in pathologic conditions of the stomach and duodenum is still an open one can readily be seen from the diversified opinions of authors on the subject. The work of Ginsburg, Tumpowsky and Hamburger[1] emphasizes the gastric tension and contractions of the stomach, together with the hyperirritability of the stomach, as the most important factors in the etiology of pain. According to the older view of chemical distress in gastric ulcer, there are certain facts which are not explainable on the basis of acid irritation. The only basis for this view at present is the alkali treatment in gastric ulcer, by which the pains are immediately relieved.[2] Carlson[3] concludes that the pains of gastric and duodenal ulcers are contraction pains, either in the stomach or in the pylorus and upper part of the duodenum. In order to confirm the contraction theory, analysis was made of three distinct types of cases:

1. Carcinoma of the pylorus in which there were vigorous peristalsis and a moderate degree of pain.
2. Healed ulcer of the duodenum with cicatricial contractions, high grade obstruction, and a very pronounced hyperperistalsis.
3. Typical peptic ulcer with vigorous peristalsis.

METHOD

The patients employed for this work were carefully examined and diagnosed clinically by Dr. B. W. Sippy and his assistants. After the diagnosis was made, the procedure was similar to that of Ginsburg, Tumpowsky and Hamburger. Kymographic tracings of the stomach contraction were begun immediately after the patient had a meal, and were continued until vigorous hunger peristalsis was obtained. The patients all cooperated very intelligently. In each case the patient swallowed two tubes, one a Rehfuss and the other an ordinary tube with rubber balloon attached. By means of the Rehfuss tube, acids and alkalis could be administered, or the stomach contents could be aspirated from time to time without disturbing the patient. When the tracings were started, the patient was told to tap the key, to note the occurrence of pain. If the pains were mild, he tapped the key once; if severe he tapped it twice, and when intense he tapped it three times. The line below the tracings records the pain periods.

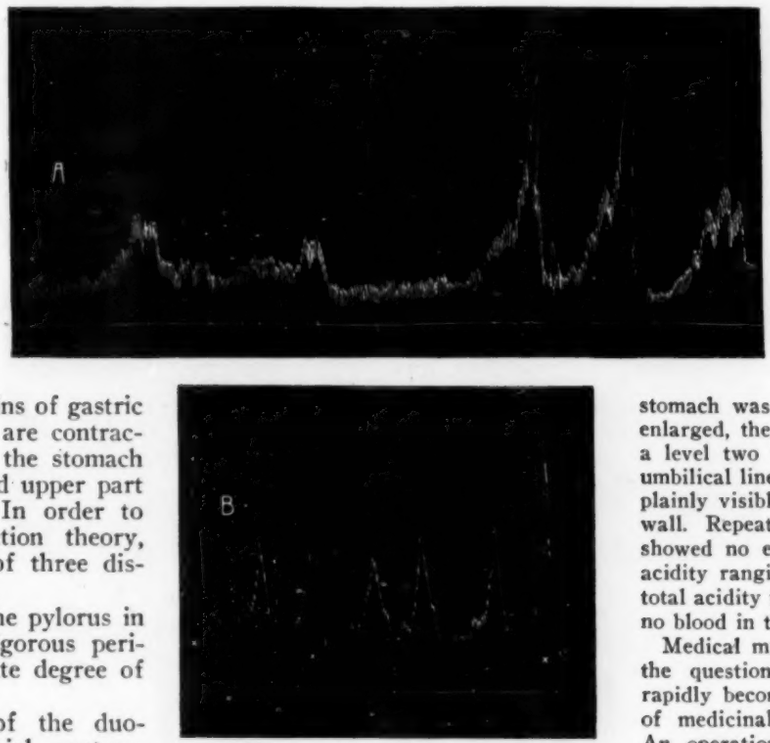

Fig. 1 (Case 1).—Record of the visible peristalsis, Feb. 20, 1917, by means of a recording signal (straight line at bottom of tracings) parallel with the recording of the contractions of the stomach by the balloon method, with the use of a chloroform manometer: *A*, two hours after the patient had eaten soup, milk, potatoes, beans, bread, tea and ice cream; *B*, after the aspiration of 700 c.c. of food material with a free acidity of 40 and a total acidity of 65. These tracings show that in healed ulcer of the duodenum or pylorus, with high grade obstruction, the contractions of the stomach are not painful.

REPORT OF CASES

CASE 1.—A boy, aged 17, gave a typical history of gastric ulcer which began about eight years previous to admission. The pain had been present at irregular intervals for about five years after the onset. But during the three years previous to admission, the pains had practically disappeared, and obstructive symptoms developed. When the patient entered the hospital, Feb. 3, 1917, he had the symptoms compatible with a high grade obstruction at the outlet of the stomach. Practically no food could pass beyond the pyloric outlet. The stomach was found to be very much enlarged, the lower border coming to a level two fingerbreadths below the umbilical line. Peristaltic waves were plainly visible through the abdominal wall. Repeated stomach analysis showed no evidence of blood, a free acidity ranging from 40 to 65, and a total acidity from 50 to 90. There was no blood in the stool.

Medical management seemed out of the question because the boy was rapidly becoming dehydrated in spite of medicinal and dietetic measures. An operation was performed and a cicatrix found at the outlet of the stomach involving a portion of the upper part of the duodenum and lower part of the pylorus. There was no evidence of an active process. Tracings (Fig. 1) were obtained previous to the operation, and vigorous peristalsis was recorded. In no instance were the peristaltic contractions associated with pain. The more vigorous were obtained when the stomach contained large quantities of food and liquid which could not pass beyond the pylorus. The contractions of the empty stomach were also exaggerated but not painful.

CASE 2.—The case described here is one which is typical of four others of this group. The patient, a man, aged 47, entered the hospital, March 5, 1917, with a typical history of gastric ulcer of about one year's duration. The distress came from two to four hours after eating, and was relieved by the taking of food or alkalis. The pains were usually more severe in the afternoon, but occasionally the patient was awaked in the middle of the night by the distress. On care-

1. Ginsburg, Harry; Tumpowsky, Isidor, and Hamburger, W. W.: Contribution to the Physiology of the Stomach: The Newer Interpretation of the Gastric Pain in Chronic Ulcer, THE JOURNAL A. M. A., Sept. 30, 1916, pp. 990-994.
2. Sippy, B. W.: Medical Cure of Gastric and Duodenal Ulcer by an Efficient Removal of Gastric Juice Corrosion, THE JOURNAL A. M. A., May 15, 1915, pp. 1625-1630.
3. Carlson, A. J.: Am. Jour. Physiol., 1917, **45**, 81.

ful questioning, we find that the pains were intermittent in character and not continuous.

Two complete series of tracings were obtained which were begun immediately after the eating of a large meal and continued until intense pains were experienced. The results of the two experiments were practically identical. No pains were experienced during the first two or three hours after eating, but fractional distillations of gastric juice at this time revealed a free acidity of from 30 to 40, and a total acidity of from 50 to 60. The digestive peristalsis was plainly visible on the records at this time, but nothing to indicate the painful pylorospasm or hunger peristalsis (Fig. 2 *A*). Three hours after eating, the patient complained of severe pain (Fig. 2 *B*). Sixty c.c. of 0.3 per cent. hydrochloric acid was administered, which gave temporary relief (Fig. 2 *C*).

Five hours after eating, the patient complained of a great deal of epigastric distress, which was of a burning, gnawing character, and as the records show, also intermittent. The pains were more severe toward the end of a hunger contraction. The patient was aspirated, and 25 c.c. of thick mucus were withdrawn. No free acid was present, and only a trace of combined acidity. Immediately after aspiration, the pain disappeared for about ten minutes. The stomach was then washed, and the pains again disappeared. One and a half hours after it had been washed, the pains were quite severe and the stomach was again aspirated. The aspiration yielded 55 c.c. of fluid which had a free acidity of 55 and a total acidity of 70. The pains were severe at this time, but the contractions were also augmented.

During one of the painful periods a powder, containing 30 grains each of bismuth and sodium bicarbonate, was administered through the tube and gave almost instant relief. No pains were experienced for the next hour and a half, and the stomach was practically quiescent (Fig. 2 *D*). At the end of this period, the stomach was aspirated and 55 c.c. of a yellowish green material were obtained which had a free acidity of 65 and a total acidity of 75. Ten minutes after aspiration, the pains returned and were more intense than on any previous occasion. The vigorous peristalsis of the stomach returned, synchronous with the return of the pain (Fig. 2 *E*).

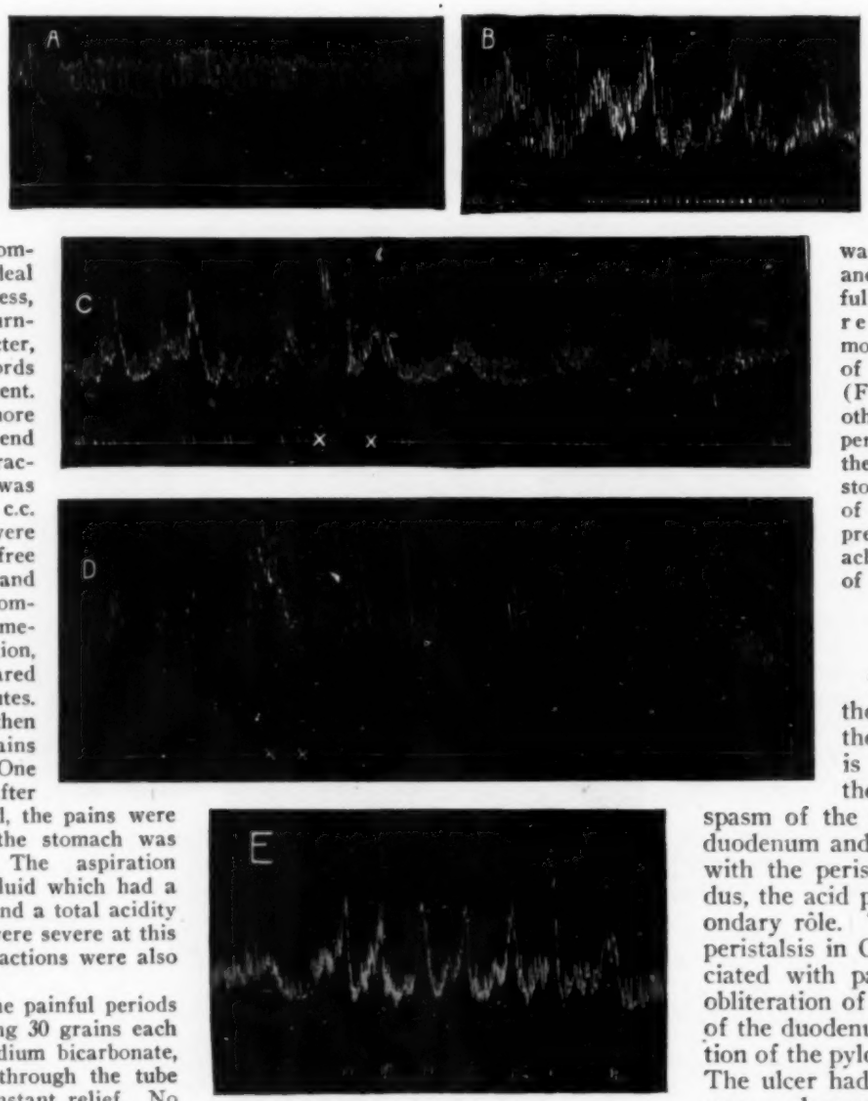

Fig. 2 (Case 2).—Record of the pain in case of gastric ulcer, March 13, 1917: *A*, one hour after the patient had eaten meat, potatoes, vegetables, bread, butter and tea; no pains; stomach contents showed a free acidity of 30 and a total acidity of 50; *B*, three hours after eating (intense pains); stomach contents showed a free acidity of 35 and a total acidity of 60; *C*, 60 c.c. of 0.3 per cent. hydrochloric acid were introduced into the stomach through a tube; *D*, at *x*, sodium bicarbonate and magnesium carbonate, 30 grains each, were introduced into the stomach through the tube; pain ceased five minutes after administration of the alkalis; the stomach was aspirated one and a half hours later, and 55 c.c. of fluid with a free acidity of 65 and a total of 75 were removed; *E*, ten minutes after the aspiration, the contractions became vigorous and the pains returned.

CASE 3.—A man, aged 67, was first admitted to the hospital, April 1, 1916, at which time a diagnosis of peptic ulcer of the duodenum was made. He left the hospital, June 13, 1916, apparently very much improved. At that time repeated stomach analyses showed a free acidity of 70 and a total acidity of 110, with an occasional weak positive Weber test. The stools also showed a weak positive Weber test. He returned again, Feb. 25, 1917, very much undernourished, and with all of the classical symptoms of high grade pyloric obstruction. Peristaltic waves were visible in the upper abdomen and as low as half way between the umbilicus and symphysis. The patient was rapidly losing weight, and an operation was performed under a local anesthetic. Carcinoma was found at the outlet of the pylorus. Gastro-enterostomy was performed, and the patient recovered. A number of tracings previous to operation were obtained which revealed the following facts:

There was a hyperperistalsis of the stomach. The digestive peristalsis as seen in the normal individual was greatly augmented, and found to be painful. The pains, as the records show, were most severe at the end of the peristaltic wave (Fig. 3 *A* and *B*). In other words, when the peristalsis had reached the pyloric end of the stomach, the same type of peristalsis was also present when the stomach had been aspirated of its food contents.

COMMENT ON RESULTS

The results further substantiate the theory that the pain is mainly due to the contraction or spasm of the upper end of the duodenum and pylorus, together with the peristalsis of the fundus, the acid playing only a secondary rôle. That the vigorous peristalsis in Case 1 is not associated with pain is due to the obliteration of the upper portion of the duodenum and lower portion of the pylorus by scar tissue. The ulcer had healed and there was no longer an active hyperirritable process to produce a duodenopylorospasm. The increase in the tension and the hyperperistalsis of the fundus were not sufficient to produce typical gastric pains. This peristalsis is merely intensified digestive peristalsis, which is not subjective in character in the absence of an active hyperesthetic process.

DISCUSSION ON CAUSE OF GASTRIC PAIN

In the normal stomach, as digestion continues and the stomach gradually empties itself, there is an

increasing tonus together with a low degree of hyperirritability, which culminates in hunger pains.[4] When there is an active ulcer, or carcinoma at the outlet, these normal processes are intensified and we have distinct gastric pains. If the pain were due to acid corrosion, we would expect that when the stomach contents were sufficiently acid (free acidity from 30 to 50 and total acidity from 40 to 70) pain would be experienced; but the results in Case 2 do not support this theory. When the stomach was relatively quiescent (Fig. 2 *A*) and the stomach contents had a free acidity of 30 and a total acidity of 50, the patient did not complain of pain. Two hours later, with only a slight variation in acidity (free, 35, total, 60) and with marked peristalsis, he complained of severe epigastric pains (Fig. 2 *B*). These pains were temporarily relieved by a 0.3 per cent. hydrochloric acid solution, and the contractions were slightly diminished.

The action of the alkalis in relieving pain is due not merely to the neutralizing of the acid content, but also to their inhibitory action on the contractions of the stomach. The alkalis act partly through a sedative effect on the stomach, in which the vigorous peristalses and painful pylorospasms are inhibited. The neutralization of the acid is probably a minor factor in the relief of pain, as is shown in Figure 2 *E*. The alkalis relieved the pain for one and a half hours, after which the stomach was aspirated of 55 c.c. of fluid, with a free acidity of 65 and a total acidity of 75. Ten minutes after 55 c.c. of acid had been aspirated, pains became more severe than on any previous occasion, and continued until the stomach was washed. The pains returned one hour after the stomach had been washed. The stomach analysis showed this time 55 c.c. of a watery mucus with a free acidity of 60 and a total acidity of 70. The ulcer pain is apparently independent of the variations in acid concentration. There may be intense intermittent pains synchronous with the contractions with no free acid in the stomach. The stomach contents may be highly acid without causing pain.

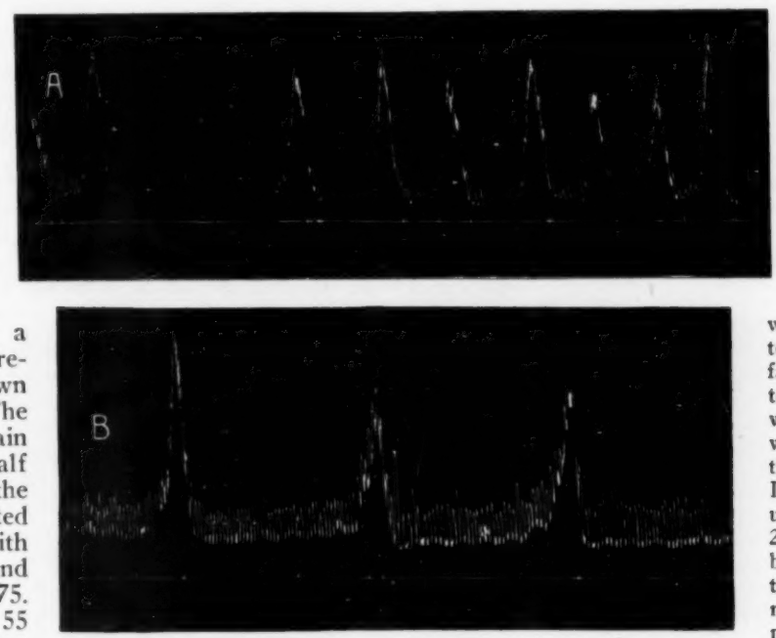

Fig. 3 (Case 3).—Record of the pain in a case of carcinoma of the pylorus, Feb. 22, 1917: *A*, one and a half hours after the patient had eaten toast, milk, egg, soup and cereal; the pain usually occurred toward the end of the contraction; *B*, two hours after the aspiration of 1,300 c.c. of food material; the contractions and pains were present, but not so marked as in *A*.

Case 3 represents a high grade pyloric obstruction in which an active hyperirritable process is present. By means of the kymographic tracing, it was demonstrated, previous to operation, that an active process was present at the pylorus or upper duodenum. The patient invariably recorded pains (of varying intensity) toward the end of a contraction. The fact that pains were experienced when the stomach contained from 12 to 1,500 c.c. of food material, and that the pains were felt only when the peristalsis had reached the pylorus, led to the conclusion that an active process was present at the outlet. Operation confirmed the conclusion.

4. Rogers, F. T., and Hardt, L. L. J.: Am. Jour. Physiol., 1915, **38**, 274-284.

CONCLUSIONS

1. Ulcer pains may be present in the absence of free acid, and may be temporarily relieved by a 0.3 per cent. hydrochloric acid solution.
2. Gastric ulcer pains may be absent in the presence of high acidity.
3. Any active process (ulcer or carcinoma) producing a hyperirritable condition may result in pain; but the pains are intermittent, being synchronous with the contractions of the stomach, pylorus or duodenum, and bearing no relation to the degree of acidity.
4. Hypertension and hyperperistalsis with high grade pyloric obstruction are not sufficient to produce pain in the absence of an active irritable process (ulcer or carcinoma).

Malnutrition Among Schoolchildren.—The bureau of child hygiene of the New York City Health Department has just completed a survey of 171,691 schoolchildren of the borough of Manattan. This figure was below the registration figures for the borough, as the survey was made during the intensely cold weather. The fact that the children came to school at this time would indicate that they were rather hardier than those not examined. The Dunfermline scale was used. Of those examined 29,781, or 17.3 per cent., belonged to the first class, that is, were perfectly normal from the nutritional point of view; 104,908, or 61.1 per cent., belonged to the second class; 31,718, or 18.5 per cent., to class three, the so-called borderline cases, and any pronounced change in their living conditions would undoubtedly have a distinct effect on their physical condition; 5,284, or 31 per cent., belonged to the fourth class, which was distinctly undernourished, and in need of immediate supervision and readjustment of life and environment. Of the children 6 years of age, 22.5 per cent. were undernourished. This undernourishment increased in percentage up to 9 years of age, at which 25.2 per cent. were found undernourished. Then followed a gradual decrease up to the age of 16 years, at which only 12.1 per cent. were found undernourished. The general proportion of actual undernourishment for the borough was 21.6 per cent. It was found that nationality played an important part in the consideration of the prevalence of malnutrition. Of the Italian children examined, 28.7 per cent. were found undernourished. The Italian children comprised 23 per cent. of the total number examined. The children from Russia and Poland, who comprised 26 per cent. of all the children examined, were found undernourished in 19.8 per cent. of the cases. The figures for immigrants from other countries ranged from 17 to 20 per cent.

SPONTANEOUS RUPTURE OF CESAREAN SCAR

REPORT OF TWO CASES

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CINCINNATI

While spontaneous rupture of the cesarean scar is not as rare as ordinarily supposed, occurring, as it does, in about 3 per cent. of all cases,[1] yet it is rare enough to occasion interest. For this reason, it may be worth while to report the following cases:

CASE 1.—Mrs. H. A., aged 33, was admitted to my service at the Seton Hospital, Oct. 18, 1917. She gave a history of having had three pregnancies covering a period of ten years. Her first child was taken away by craniotomy, several attempts of high forceps having failed. The second was born alive with much difficulty and has since been mentally defective. The third child was delivered by cesarean section transperitoneally, June 4, 1916. In referring to the operative history of this case, I found that the incision was made into the placental site. This is of especial interest, since Spalding,[2] in a recent study of four cases, gave this as a possible cause of the weakening of the resulting scar.

The patient appeared to be in good health. She was 4 feet and 10 inches in height, and had been pregnant eight months, with neither signs nor history of tuberculosis or syphilis. Vaginal examination showed a contracted pelvis, especially in the anteroposterior diameter. The scar on the abdomen was scarcely noticeable and had apparently healed by first intention.

Fearing a possible rupture of the cesarean scar, I decided to perform the second cesarean operation, the following morning, and preparation was made accordingly. Throughout the night the patient seemed restless and vomited twice. At 8 o'clock the following morning, she experienced a severe pain in the abdomen and went into a state of collapse. She was immediately given a quarter grain of morphin and was taken to the operating room.

The abdomen was opened under local anesthesia and the child was found lying among the intestines with the membranes intact. The abdomen was filled with blood, and the uterus was laid wide open by a longitudinal tear corresponding to the previous cesarean scar, and, although contracted into the pelvis, it was bleeding profusely. Under mild ether inhalations, a rapid supravaginal hysterectomy was performed and the patient returned to bed. The postoperative course was very stormy, and although the patient apparently rallied from the shock, she never became rational. She died on the third day following the operation from general peritonitis.

CASE 2.—I was called in consultation to the home of Mrs. M. A., aged 28, Oct. 25, 1916. The physician in attendance told me that she had been in labor about six hours and that the os had been fully dilated when she had suddenly experienced a terrific pain in her abdomen and had gone into a state of collapse. Six years previously, she had had one living child delivered by a transperitoneal cesarean section, because of a contracted pelvis.

When I first saw her, one-half hour after the apparent rupture, she had a subnormal temperature and a pulse so weak and rapid that it could not be counted. The child could be distinctly palpated and outlined lying in the abdominal cavity, and vaginal examination revealed the uterus contracted into the pelvis.

The patient was immediately sent to the hospital, but was dead before she reached it. On her arrival, the abdomen was opened with hopes of resuscitating the child, but the effort was futile. The child was lying among the intestines with the membranes ruptured. The placenta was found in the pelvis extruding from the ruptured uterus. The abdomen was filled with blood.

1. Rongy, A. J.: Am. Jour. Obst., 1916, **74**, 954.
2. Spalding, A. B.: Cesarean Section Scars, THE JOURNAL A. M. A., Dec. 1, 1917, p. 1847.

COMMENT

The first of these cases is exceptionally interesting because of the early rupture and its occurrence at the end of the eighth month. The second case is interesting because of the long period, six years, since the patient's previous cesarean section.

In each of these cases, the incisions in the abdomen were unusually large for the cesarean operation, and although the tears in the uterus may have extended beyond the previous scar, they were unusually long, extending well over the posterior surface of the fundus.

In these two cases it was impressed on me that a comparatively small incision into the uterus in a cesarean operation is of advantage, and also that when a second cesarean operation is considered advisable in a patient having a cesarean scar, the operation should be performed not later than the end of the eighth month. For at this time, the life of the child will not be jeopardized, and the possibility of rupture up to this time is comparatively small.

827 West Eighth Street.

NEUTRAL SOLUTION OF CHLORINATED SODA (DAKIN'S SOLUTION) IN THE NORMAL PERITONEAL CAVITY

AN EXPERIMENTAL STUDY *

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The purpose of this research was to determine whether or not neutral solution of chlorinated soda (Dakin's solution) could be used with safety in the peritoneal cavity. The series of experiments was begun with the sole idea of deciding this point for our own benefit, as we believed that other investigators more closely associated with the work would soon publish similar experiments. Since this has not been done, we thought it might be of value briefly to give our results.[1]

All of the experiments were performed on dogs. In some cases the animals were etherized and the effect of the injection of the solution on the blood pressure was noted. In other experiments, the symptoms produced by the injection on the normal animal were studied.

The solution was made fresh for each day's experiments except in those cases in which it was desired to observe the effect of an old preparation, and the hypochlorite concentrate varied between 0.45 and 0.50 per cent. and was neutral.

The usual effect of an intraperitoneal injection of a fresh preparation of Dakin's solution into an etherized dog is an immediate and marked drop in blood pressure, which progresses until it becomes quite low. This result is, of course, more marked when large amounts (300 c.c.) of the solution are employed, but also occurs at times with relatively small quantities. Usually, however, when small amounts (10 c.c.) are used, the blood pressure is at first slightly increased

* From the Mayo Clinic.
* On account of lack of space the details of animal experiments are omitted. They appear in the author's reprints of the article.
1. It should be emphasized that no conclusions are drawn either in regard to the use of Dakin's solution or the employment of the Carrell-Dakin method of wound treatment.

but is soon followed by a decrease. It may or may not return to normal (Experiments 212-17 and 253-17, and Fig. 1).

The first effect produced by the intraperitoneal injection of Dakin's solution in an unanesthetized dog is evidence of pain. This has been elicited with as small an amount as the first 2 c.c. of an injection. The animal develops a marked abdominal rigidity,

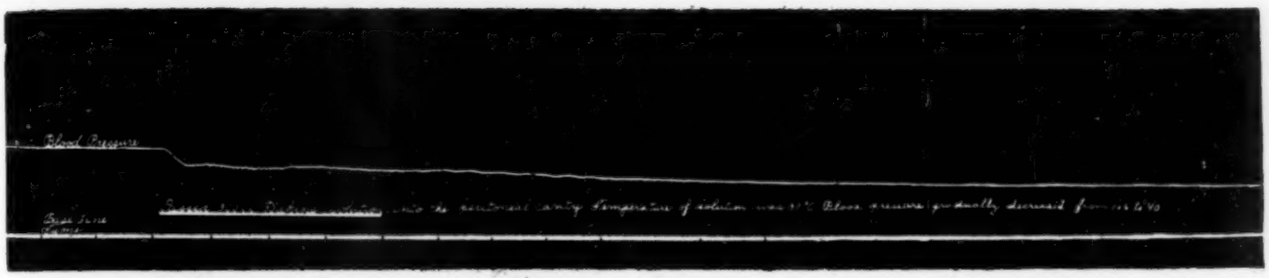

Fig. 1 (Experiment 253-17).—Kymograph record showing the effect of the injection of Dakin's solution on blood pressure.

spontaneously passes feces and urine, vomits, and becomes very restless. When the injection has been relatively small (10 c.c.), the effects gradually decrease, and may have practically disappeared within an hour or two. When larger amounts are injected, the animal may be restless until death occurs.

At the necropsy of a dog dying after the intraperitoneal injection of Dakin's solution, three changes are always noted. The peritoneal cavity and usually the pleural cavities contain a dark blood-stained fluid. There may be quite large amounts of this fluid present. The omentum and the intestine are perforated with numerous holes, and in some cases only the large blood vessels of these structures remain. The parietal peritoneum on the side on which the animal has lain is edematous.

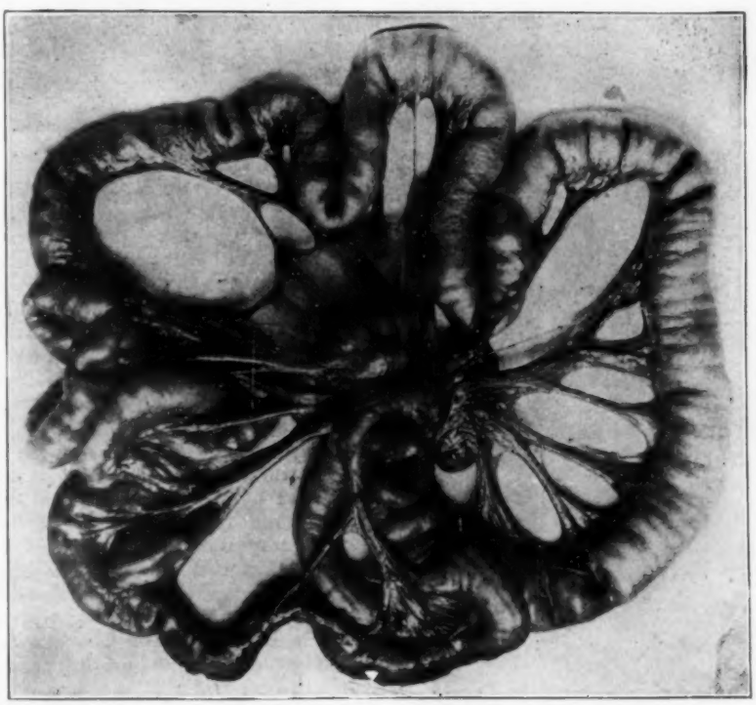

Fig. 2 (Experiment 212-17).—Intestine and mesentery after an intraperitoneal injection of Dakin's solution.

The effect of the injection of Dakin's solution into the pleural cavity is practically negligible both in the anesthetized and in the unanesthetized animal. Of course, owing to the mechanics of the thorax, only relatively small amounts of the solution can be injected. Blood pressure is only slightly affected; the animal does not show signs of pain. In one dog, 20 c.c. of the solution injected into the right pleural cavity did not produce any noticeable effect, while 5 c.c. injected intraperitoneally produced a marked reaction (Experiment 290-17).

The intravenous injection of Dakin's solution in the dog is comparatively not very dangerous. Carrel and Dehelly[2] state that the solution is very dangerous when injected into the general circulation of rabbits. The only changes noted were increased coagulation time and a laking of the blood, which assumes a very dark color. Blood pressure is only slightly affected by doses which produce a marked reaction when injected intraperitoneally. The intravenous injection of 180 c.c. in 30 c.c. doses every half hour did not produce any other changes except those noted as affecting the blood (Experiment 319-17).

In one series of experiments the effect of an old preparation of Dakin's solution was studied. After the usual results had been obtained with the fresh solution, the remaining portion was tightly corked in an amber-colored bottle and placed in a dark room in which the temperature was not more than 20 C. The effect of the intraperitoneal injection of a solution kept under such conditions for three or four days was practically negligible.

CONCLUSIONS

1. The intraperitoneal injection of various amounts of Dakin's solution in the dog produces (*a*) decrease in blood pressure, (*b*) pain, (*c*) marked serous exudate, (*d*) erosion and perforation of the omentum and mesentery, and (*e*) with rather large amounts, eventually death.

2. The injection of Dakin's solution into the pleural cavity, in amounts too small to produce a mechanical action, is without noticeable effect.

3. The intravenous injection of Dakin's solution in amounts large enough to produce a marked reaction

2. Carrel, Alexis, and Dehelly, D.: The Treatment of Infected Wounds, New York, Paul B. Hoeber, 1917, p. 32.

when injected into the abdominal cavity, does not produce any general effect. When large injections are employed, the blood is laked and the coagulation time is greatly increased.

4. An amount of solution which is practically innocuous in either the pleural cavity or vascular system will produce quite marked effects when injected into the peritoneal cavity.

5. Only fresh preparations produce this response when injected intraperitoneally.

6. These conclusions apply only in regard to the action of Dakin's solution in the normal peritoneal cavity.

MALPOSITION OF THE DESCENDING COLON

REPORT OF CASE

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History.—Mrs. W. K. P., aged 59, 5 feet 9 inches tall, and weighing 160 pounds, came under my care in November, 1917. About twenty-five years before she had had an operation on the pelvic organs. Following this, according to her own account, her convalescence was stormy and prolonged. Gradually she began to note that she became more and more constipated, and abdominal tenderness was felt, which was general rather than localized. Some four years before she had had a number of attacks of pain referable to the right iliac fossa, none of which were severe enough to put her in bed. About this time she began to suffer with a mild form of mucous colitis, which persisted, gradually increasing in severity, until the time I first visited her. By nature she was of high-strung nervous type, and these features had increased as time passed, until she had become a pronounced neurasthenic.

Fig. 1.—Colon, thirty hours after ingestion of bismuth meal.

In November, 1916, she had a violent attack of abdominal pain, which was diagnosed by her attending physician, in consultation with a competent surgeon, as acute appendicitis. Owing to conditions with which I am not fully acquainted, it was thought best not to operate at that time. She remained constantly in bed for several months, and following her arrival in California in March, 1917, was in bed most of the time for the subsequent seven months. During this time she had received much treatment in the line of abdominal massage, fomentations, and applications of "radiant heat"—so much so that the skin of the abdomen was extensively mottled and discolored. Much of the time spent in bed since her arrival in California had been utilized by the attendants in vain attempts to keep the alimentary canal comfortably free of solid and gaseous contents. It is of interest to note here that it was much easier to secure the passage of solid material than of gas.

Fig. 2.—Colon, after an opaque enema, on the day after Figure 1 was taken.

Examination.—So great were the abdominal distention and the general tenderness that it was impossible to make anything like a satisfactory physical examination. There were unmistakable rigidity of the right rectus muscle and hypersensitiveness of the abdomen over all portions. The patient at this time was profoundly neurotic, nervous and highly excitable. After much hesitation she consented to visit a roentgen-ray laboratory. Figure 1 was made thirty hours after the ingestion of the bismuth meal. Figure 2 was made the following day after an opaque enema.

It will be noted that the position of the colon in the two illustrations is practically the same, the descending colon lying much nearer the midline throughout its course than the ascending colon, and its point of mergence into the sigmoid being pulled entirely across the abdominal cavity and tightly adherent to the cecum. When we recall that in approximately only 20 per cent. of cases is the descending colon provided with a mesentery of any length, it is apparent that in this case the development of the mesentery was so great as to mark it as being most unusual.

Operation and Result.—Nov. 28, 1917, through a long right rectus incision, the conditions about the cecum were first investigated. Dense bands of adhesions passed in every

direction from this focus, entirely burying the appendix, with the exception of about three-quarters inch of its distal extremity. Not only was the terminal end of the descending colon found tightly adherent to the cecum, as shown in the illustrations, its lumen being contracted probably one half, but also dense bands of adhesions radiated in every direction, one of these passing over to and being tightly adherent to the terminal ileum about 2 inches from its junction with the cecum, forming a typical Lane's kink and resulting in marked obstruction at this point. When the adhesions binding the descending colon or sigmoidocolonic junction in its false position were released, the problem presented itself as to what precaution would best prevent recurrence. The best solution of the problem seemed to be to carry the descending colon across the abdomen and fix it in approximately its normal position by means of a colopexy through a second incision in the external edge of the left rectus muscle. This was done. The adhesive bands about the cecum were dealt with as radically as seemed wise at the time, and the appendix was freed and removed. The hand, passed into the pelvis, found the great omentum tightly adherent at the site of the abdominal incision made a quarter of a century previously. This was released, and a good portion of the omentum ligated and cut away.

The convalescence from a surgical standpoint was without incident, with the exception of the onset of an acute attack of left parotitis beginning about eighteen hours subsequent to the operation. It must be noted, however, that the patient's morale was far from satisfactory during the first ten days. Her constant complaint was that she had not been allowed to die. Now, two months after the operation, her condition in every way is most satisfactory, the mucous colitis being practically eliminated, the highly wrought nervous tension being no longer in evidence, and the gaseous distention and constipation no longer giving trouble.

COMMENT

Several features of this case, in addition to the malposition of the colon, seem interesting enough to be worthy of comment:

1. Partial obstruction was more pronounced with reference to gas than to solid material.

2. The mucous colitis was almost magically relieved, thus again emphasizing what I have long maintained, that this malady is practically always the result of mechanical causes, usually operating from outside the colon.

3. A curious feature was that when the patient suffered the acute attack of appendicitis in November, 1916, it was attended by a violent attack of inflammation of the right parotid gland; eighteen hours subsequent to the operation on the appendix she developed a similar violent attack involving the gland of the left side.

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Supplies for Halifax.—Among the requests for assistance in the early hours after the disaster at Halifax was one for a million units of "antipneumonia serum." This request was made of the civilian branch of the American Red Cross, and within a few hours all the available product in the United States was on the way to Halifax. This serum is a comparatively new agent for the treatment of pneumonia and the supply in the United States was of course insufficient to meet this large demand. The *Survey*, December 15, gives an interesting account of the way in which this call on the biologic product houses was met, as well as information of the prompt response to the needs of the suffering people of Halifax in the way of clothing, cots, blankets, bandages and dressings for the wounded, lumber, glass and other building materials. Supplies and money poured in on the stricken city in such abundance that in a few days those in charge of the situation were compelled to request that additional material be not sent except on specific requests.

Clinical Notes, Suggestions, and New Instruments

REOPERATION OF INCOMPLETE SUBMUCOUS RESECTION OF THE NASAL SEPTUM

G. W. MOSHER, M.D., CHICAGO

In the early days of submucous resection for septal deformities, and in more recent times, on account of the clinician's failure to appreciate the importance of deflections and thickenings of the upper part of the septum, many incomplete operations were done. These operations may be classified as follows:

A. The procedures of crushing and repositioning, as in the Asch and Gleason operations.

B. The removal of spurs and ridges by various means, leaving a complete bony and cartilaginous wall between the two membranes.

C. The submucous removal of a portion of the bone and cartilage at the most prominent part of the obstruction, producing a window where the membranes become adherent to each other.

D. A combination of B and C.

In a considerable percentage of cases, the results from these measures are not satisfactory and the patients later seek further relief. In Classes A and B, the technic for the second operation is the same as for a case in which no operation had been performed, although the derangement of relations and the presence of scar tissue render the work more difficult. The problem of Classes C and D is somewhat different.

Formerly, I endeavored to separate the adherent membranes and do a typical submucous resection. In practically every case, some tearing occurred, and in too many cases both membranes suffered and perforation resulted. Recently I have adopted the following method, which has thus far proved perfectly satisfactory: I use the Killian incision on the convex side, elevate the membrane as completely as possible without disturbing the part attached to the opposite membrane, incise the cartilage anterior to the old window, and elevate the other membrane. I use a Freer knife or sharp elevator and, working from within outward to the side of the first incision, cut as clearly as possible around the adherent mucosa, leaving it attached to the other mucosa, thus making a corresponding hole in the incised membrane. I complete the elevation of the membranes and finish the operation as in an uncomplicated case.

By this method of procedure, the membrane on the concave side can be kept intact almost as easily as in a typical case, while the membrane on the convex side has only the original incision and a comparatively clean incision about the adherent portion. As a consequence, there is a minimum of traumatism. Healing is little, if any, slower than in an uncomplicated case, and the final result is comparable to that of a typical primary operation.

25 East Washington Street.

IMPROVED METHOD FOR REFILLING IN ARTIFICIAL PNEUMOTHORAX

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For some little time I have been refilling my patients treated by artificial pneumothorax by a more satisfactory method than I had heretofore used.

I have been using a 20 gage, 1¼ inch steel needle for injecting the cocain, and have then attached to the needle, after the syringe has been removed, a tuberculin syringe which has been previously attached to the rubber tubing from the bottle containing the air to be used, the air having been passed through a solution of mercuric chlorid for sterilization.

While the caliber of this needle is much smaller than that of the Shortle refill needle, the oscillations of the manometer have been very satisfactory.

This method renders the operation relatively simple and harmless, in that a knife is not used, and the pleura is punctured only once, when the cocain is injected.

The air does not enter the pleural cavity so rapidly, there is practically no tissue injury, bleeding nor subcutaneous emphysema, and the danger of pleural shock and embolism are practically eliminated.

Patients who have tried both methods are enthusiastic in their praises of the new method, as there is no more discomfort than in a hypodermic injection.

Military Medicine and Surgery

ARMY CARDIOVASCULAR EXAMINATIONS

A CLASSIFICATION OF ABNORMALITIES WITH REFERENCE TO REJECTION, ACCEPTANCE, OR SPECIAL SERVICE OF RECRUITS

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The work on which these comments are based was in two parts: The first part was a final cardiovascular survey of about 25,000 national guardsmen at Pelham Bay and Camp Mills, both of which were tent camps, requiring about six weeks for its performance. The guardsmen were also examined for tuberculosis, but I confine this paper to the heart work. The second part of the work was the service rendered by my colleagues and myself as members of the cardiovascular consulting board at Camp Upton, a cantonment of the National Army, during a period of four weeks covering the arrival of the fourth increment of the first draft.

METHODS OF EXAMINATION

At Pelham Bay and Camp Mills the number of examiners varied from five to twelve, according to need. The necessity was great, and in both camps the work was pushed with the utmost speed, under the command of Major L. A. Conner, M. R. C.

Permission was obtained to use one of the large Red Triangle tents. The troops were examined by companies, each containing about 250 men or similar units, officers first. The enlisted men then entered at one end of the tent and were formed in two lines, each in charge of a noncommissioned officer, whose duties were to preserve order, prevent smoking and loud talking, and to see that each man stripped to the waist and carried his clothes on his arm. He also saw to it that at least two men were constantly in front of each examiner, so that when one man had been examined, the next immediately stepped forward. As each man finished, he passed out at the farther end of the tent. The examiners were stationed along each side of the farther half of the tent. In the middle was a table at which sat two clerks, each with a roster of the company. Here also were benches for rejected men and doubtful cases. As each man was examined, he reported "O. K." to the nearest clerk, or was sent to the benches for further examination. In the latter case, the examiner usually made a brief note which was sent to the ranking medical officer, who acted as referee. It was only by this careful attention to detail that the requisite speed could be obtained.

While the company or other unit was passing through the tent, the papers of those unquestionably rejected were made out. The doubtful cases were then examined by at least three, and if of special interest, by nearly all, of the examiners. The decision of the ranking officer was, of course, final. In this manner a team of from ten to twelve examiners put through about 1,000 men a day, the work including auscultation for active tuberculosis. Percussion was always difficult, and sometimes impossible, because of the unavoidable noise and confusion incident to the voluntary coughing required to elicit râles. Each one of the team averaged from ninety to a hundred men per day—too many for the best results.

The hours of work were from 9 to 5, with an intermission for lunch. Six and one-half hours may not seem long, but the examiners were constantly on their feet, and engaged in intensive work Going so rapidly, they found it necessary to concentrate their attention to the utmost in order not to miss something which ought not to be missed. At times the examiner would draw out an empty diagnostic net fifty or a hundred times in succession, and begin to doubt his own faculties. On one occasion, however, an examiner found two aortic insufficiencies, one following the other, after which he regained a little self-confidence.

It was usually possible to devote a little more than three minutes to each man, for both heart and lungs. The routine followed by most of us was to locate the apex by palpation, observe the general shape of the thorax, look for enlargement of the thyroid, percuss the right and left second interspaces, and scrutinize the neck, the upper sternal region, and the precordium for abnormal pulsations. The last step was to auscultate, in succession, the cardiac apex, the second interspaces to the right and left of the sternum, and the third left costosternal junction, the last being auscultated while breathing was suspended, especially for the soft diastolic murmur of aortic insufficiency. During auscultation we not only noted the presence of murmurs and adventitious sounds, but also carefully observed the character of the first sound, and the character and relative accentuation of the aortic and pulmonary closure sounds. If the heart action was rapid, its rate was counted. The wrist watch proved an extremely convenient article.

If any abnormality was found, unless indubitably negligible, the man was held for a more detailed examination. Observation of the effect of the recumbent position on murmurs, and of the effect of the exercise test on the heart and the respiration rate was most useful. The exercise test consisted in the recruits hopping on one foot 100 times. The pulse rate was taken before, and immediately after, the hops, and again two minutes later, at which time it should have come back to nearly normal, and the dyspnea should have largely subsided. Working in this fashion, and with persistent concentration, we hope that not many defective hearts escaped our observation.

The work at Camp Upton was of a somewhat different character. The cardiovascular consulting board consisted of Lieut. E. J. Riley, M. R. C., Dr. Tasker Howard, contract surgeon, and myself. We examined only those men who, while passing through the routine examination by the regular teams, were considered to require a special heart examination. Out of 10,850 drafted men, 340, or 3.1 per cent. were

sent to us for judgment. Of this number, sixty, or 17.7 per cent., were rejected by us.

From time to time, it was necessary to recall men for reexamination on the next, or a subsequent, day. This occurred most frequently with the men suffering from tachycardia, occasionally in cases of extra systole or of poor response to the exercise test. Such a reexamination also proved most useful in a very few instances in which there was reason to suspect that a man had come primed to the minute with belladonna, to cause a tachycardia, or with digitalis, to simulate an organic heart-block, or auricular fibrillation, or coupled beats. There were some men, gratifyingly few, who had fought John Barleycorn the night before. A day or two of waiting cleared up a large percentage of such abnormal findings.

In general, it may be said that the conditions which had escaped observation in previous examinations—for all these men had been examined from one to three times—were hyperthyroidism, mitral stenosis, and aortic insufficiency. The diastolic murmur of the last condition, often extremely soft and almost inaudible, is the one bruit that can at times be heard by immediate auscultation, when it cannot be detected by the stethoscope. But after catching one of these shadowy diastolics, the examiner found it difficult not to hear it in the next three or four hearts. Thickened radials, with a normal blood pressure, were of frequent occurrence.

STANDARDS ESTABLISHED

Until one examines a few thousand presumably normal hearts, one has no idea of the abnormalities that may be found, or of the difficulty that may be experienced in deciding whether they should be considered as cause for rejection, acceptance, record only, or for special service. It was a source of regret that, up to the end of our term, we were required either to accept, with or without record of findings, or to reject. We found, for instance, an architect, a draftsman, an artist, a printer, public accountant, and a number of stenographers and typists, who were not fit for full military duty, but who were perfectly able to carry on their habitual work. These we were obliged to reject at a time when there was an apparent need for them in Army work. But it has been stated that in the near future, the men will be either accepted, rejected, or assigned to special service.

The Surgeon-General has laid down some very definite rules for the guidance of cardiovascular examiners. The normal heart is defined as one with the apex impulse within the left nipple line and not below the fifth interspace, of normal, not heaving character, with normal sounds, without murmurs, without pulsation or dulness above the base of the heart, with regular pulse of normal rate, and with no unusual thickening of the arteries or evidences of high blood pressure; and finally it shows a normal response to the exercise test.

But there is a considerable number of abnormalities that do not furnish grounds for rejection, as well as those that do. Furthermore, there are abnormalities which in the future will allow a conditional acceptance of the recruit, but will require additional observation by the medical officers of each recruit's unit, in order to determine the effect of training.

From a practical point of view it has seemed useful to classify the abnormalities that may be found, in order to facilitate the making of the proper recommendation.

I. *Abnormalities requiring unconditional rejection.*—1. Hypertrophy sufficient to cause a heaving impulse to the left of the nipple line, or below the sixth rib, usually due to hypertension or valvular disease.

2. Diastolic murmurs at the apex or base.

3. Presystolic murmurs at the apex or base.

4. Systolic murmurs over the aortic area, if harsh and heard well up in the neck, or if associated with thrill, or with a markedly weak aortic closure sound.

5. Loud systolic murmurs audible at the apex and the back, if associated with hypertrophy, or snapping first sound, or accentuated pulmonic closure sound.

6. A loud, harsh, systolic murmur heard over the upper left chest, front and back, or associated with thrill during quiet breathing, as in congenital cardiac disease.

7. Considerable dilatation of the aorta, or

8. Slight dilatation of the aorta, with a positive Wassermann reaction. The presence of the dilatation is to be determined by roentgen-ray examination.

9. A pulse constantly more than 100, when the man is recumbent.

10. A persistent pulse rate of 50 or less, if heart-block is proved by tracings or electrocardiograms.

11. Extrasystoles, but only when very frequent and persistent, with poor response to exercise, as determined by watching the man during his training.

12. Complete and permanent irregularity of the pulse, in other words, auricular fibrillation.

13. A systolic blood pressure of 200 or more or a diastolic pressure of 120 or more, when the man is quietly recumbent.

14. Aneurysm in any vessel.

II. *Abnormalities permitting unconditional acceptance for full military service.*—1. Systolic apical murmurs, on excitement, especially when recumbent.

2. Systolic accentuation of the respiratory murmur, especially on inspiration, heard near the apex or over the back.

3. Systolic murmurs heard over the second and third left interspaces. With few exceptions these are accidental, and often disappear during full inspiration.

4. A slight systolic murmur over the second right intercostal space, when it is the only abnormal sign, and the response to exercise is normal and unattended with marked dyspnea or precordial distress.

5. Other systolic murmurs not attended by hypertrophy, alteration of the first sound, accentuated pulmonary closure sound, or abnormal response to exercise. These should be recorded, F. R. O.

6. Findings in accordance with the special order of the Surgeon-General's Office, War Department, Oct. 25, 1917, which direct that recruits who show loud systolic murmurs, audible at the apex and in the left back, if unassociated with any definite enlargement of the heart, or with snapping first sound, or accentuation of the pulmonic second sound, and in whom the response to exercise is normal, may be accepted for full military service, but that the physical sign present shall be entered on the record.

7. Slight dilatation of the aorta, determined by the roentgen ray, with a negative Wassermann reaction, if it is the only impairment, with no symptoms, and with a normal response to exercise.

8. Bradycardia with normal rhythm and normal response to exercise.

9. Extrasystoles, that is, premature contractions, if occasional, without hypertrophy, and with a normal response to exercise.

10. Sinus arrhythmia, that is, respiratory irregularity of the pulse.

11. Thickened arteries, without cardiac hypertrophy or high blood pressure, and with normal response to exercise.

12. Unusual findings, not covered by instructions, if there is no cardiac hypertrophy and if the response to exercise is normal.

III. *Abnormalities permitting acceptance, but to be reported to the camp surgeon with a request that the recruit be watched during training.*—1. Persistent extrasystoles, if only impairment.

2. History of attacks of severe tachycardia with dyspnea.

3. Normal heart, but with poor response to exercise, and with a past history of incapacity for physical exertion.

IV. *Abnormalities which permit a recommendation for special service requiring little bodily exertion.*—1. Dilatation of the aorta, or syphilitic aortitis, if without symptoms.

2. Systolic blood pressure more than 160, but less than 200; or a diastolic more than 100 and less than 120, if persistent.

3. Heart normal, but with the response to exercise impaired, and a past history of incapacity for bodily exertion.

SIGNS OF VASOMOTOR INSTABILITY

The cases that gave us the greatest difficulty in decision were the tachycardias, with the pulse ranging from about 120, when the recruit was standing, up to 140, 160 or 180 after exercise. After a time we learned to separate these men into three groups:

1. The cases of purely nervous tachycardias, in easily disturbed persons. Some of the recruits had a history of a rapid pulse whenever examined. Some were excited for fear of rejection, and a very few for fear they would not be rejected. The tachycardias in these cases, as well as the rapid pulses due to exertion immediately before examination, were for the most part easily eliminated by a few minutes of quiet, with the recruit in a recumbent position, or if not by this, by a reexamination a day or two later.

2. The cases of tachycardia which showed a barely perceptible thyroid enlargement, slight tremor, moderate dermatographia, and other signs of vasomotor instability, but no eye symptoms. These were by far the most difficult to decide, and were very much more common than our civil practice would suggest. The majority of the men were of excellent physique and were keen for service, but were excitable and perhaps somewhat on the so-called neurasthenic order. Clinically, one would make a diagnosis of a mild hyperthyroidism, or beg the question of etiology by calling it vasomotor ataxia of unknown origin. It was so hard to decide about these men that on one occasion we had a special examination of a baker's dozen. Each one was examined by every member of the board at Camp Mills, and the question of acceptance or rejection voted on by the whole board for each subject. Most of the men were accepted, but the voting was by no means unanimous. This incident is mentioned simply to show that, even after a fairly large experience, there is room for difference of opinion in these puzzling cases.

Several of us believed, and still believe, that such men, desirable as they may be in all other respects, will not be able to stand the strain of service. This opinion has been voiced by Osler,[1] who, to use his own words, "sees the wastage of the recruiting office." He says: "The trenches are no place for the man with unstable vasomotors. In the strain of war they break like dry twigs, and become a heavy burden on the hospitals and convalescent homes. In all cases, when in doubt, give the country the benefit."

3. Exophthalmic goiter. When there was no doubt as to diagnosis, men with marked exophthalmic goiter were, and should be, rejected.

In this connection, it is of interest to mention the extraordinary prevalence of the plain cystic goiter in men from certain parts of the country, especially from the northern part of New York and from the other states bordering on the Great Lakes. Provided there were no evidences of hyperthyroidism, these men were nearly all accepted, but were made F. R. O.'s. A negligible few were not accepted because of certain symptoms following exercise, which indicated undue pressure on the trachea—a purely mechanical effect.

As to the tachycardias in general, it may safely be said that it is often impossible in one examination to distinguish with certainty between the nervous and the slight hyperthyroid cases. It should be the rule to reexamine after the lapse of one or more days—a week, if possible. If a second examination is impracticable, the medical officer of the soldier's unit should be requested to keep the latter under observation during his training, that is to say, ascertain the results of a functional test.

226 Gates Avenue.

1. Osler, Sir William: War Wastage, THE JOURNAL A. M. A., July 28, 1917, p. 290.

ACIDOSIS IN SHOCK*

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At the suggestion of the National Research Council, extensive investigations on shock have been undertaken. Numerous theories have been offered as to the cause of the condition termed "shock." One attributes the condition to acidosis, and sodium bicarbonate has been suggested in the treatment.

In connection with observations on shock carried on in this laboratory, a preliminary report of which has been published,[1] studies on the acidosis factor were undertaken. The results of these observations form the context of this report.

METHODS OF EXPERIMENTATION

The method of producing shock and judging of the condition has been described in a previous report.[1] Essentially, they comprise prolonged strong rhythmic stimulation of the afferent nerves of dogs, under ether anesthesia. Under such circumstances the time required to establish the condition varied greatly in different animals. When necessary, the onset of the condition was hastened by other means, such as exposure and manipulation of the abdominal viscera. In later experiments peripheral nerve stimulation combined with partial cerebral anemia was found to be the most satisfactory procedure yet employed in refractory cases.[2] Anemia was produced by temporary occlusion of arteries supplying the medulla and brain. It should be noted that blood was always lost, but the quantity was not great, being limited to the amount unavoidably escaping from operative procedures and samples withdrawn at intervals for analyses.

The methods used for studying acidosis were the indicator methods of Levy, Rowntree and Marriott for H-ion concentration;[3] of Marriott for reserve alkalinity,[4] and of Van Slyke for plasma bicarbonate.[5]

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1. Guthrie, C. C.: Experimental Shock, THE JOURNAL A. M. A., Oct. 27, 1917, p. 1394.

2. Guthrie, C. C.: Observations in Shock, Proc. Am. Physiol. Soc., 1917; Am. Jour. Physiol., to be published.

3. Levy, R. L.; Rowntree, L. G., and Marriott, W. M.: A Simple Method for Determining Variations in the Hydrogen-Ion Concentration of the Blood, Arch. Int. Med., September, 1915, p. 389.

4. Marriott, W. M.: A Method for the Determination of the Alkali Reserve of the Blood Plasma, Arch. Int. Med., June, 1916, p. 840.

5. Van Slyke, Donald D.: A Method for the Determination of Carbon Dioxid and Carbonates in Solution, Jour. Biol. Chem., 1917, 30, 347.

In the early experiments, the indicator methods for H-ion concentration and reserve alkalinity being used, variations in different animals were found. In some cases there was no change, while in others there was an increase in concentration. The greatest variations occurred in reserve alkalinity.

In later experiments aimed primarily at the acidosis factor, Van Slyke's method for plasma bicarbonate was employed. This method was chosen, first, because the preliminary experiments showed greatest changes in reserve alkalinity, and in some cases no change in the H-ion concentration itself. Secondly, because our use of the term acidosis is based on the work of Henderson,[6] Van Slyke[7] and others, namely, that the blood bicarbonate is the criterion of the acid base balance of the body.

Van Slyke's technic was followed in detail. Blood samples were drawn from the femoral vein by the syringe method. Coagulation was prevented by neutral potassium oxalate. The blood was immediately centrifuged and the plasma removed, saturated with the expired air of the operator, and 1 c.c. taken for analysis.

RESULTS

1. *Plasma Bicarbonate in Ether Anesthesia.*—The observations on normal dogs before the administration of ether have fallen within the range for normal adults given by Van Slyke (from 53 to 77 per cent. of carbon dioxid by volume). Following the administration of ether a considerable decrease in the plasma bicarbonate was noted. We have observed that under anesthesia only, before the measures employed to induce shock were begun, the bicarbonate content of the plasma ranged between 40 and 50 per cent. of carbon dioxid by volume. In one case, we observed 55.7 per cent. of carbon dioxid by volume under ether anesthesia. This was due, no doubt, in part to the muscular activity associated with the administration of the anesthetic.

2. *Plasma Bicarbonate in Shock.*—In general there was a gradual decrease in reserve alkalinity associated with shock production. The results obtained in shock ranged between 35 and 45 per cent. of carbon dioxid by volume. The amount of decrease varied in different animals. In some cases the results were very slight, being only 5 per cent. of carbon dioxid by volume; in others they were more marked, 10 per cent. of carbon dioxid by volume being observed. Two animals were reduced to a profound state of shock, showing a bicarbonate content of plasma within the range of other animals before shock production. The results of two experiments illustrating this point are given in the accompanying tabulation.

PLASMA BICARBONATE IN SHOCK

	Per Cent. of Carbon Dioxid by Volume	
	Exp. 30	Exp. 31
Before shock production, immediately after administration of anesthetic	55.7	40.0
During period of shock production	51.9	40.0
Animal showing symptoms of profound shock	49.0	35.3

3. *Injection of Sodium Bicarbonate in Shocked Animals.*—The injection of sodium bicarbonate in shocked animals brought the reserve alkalinity back to the upper limit of normal. This return of reserve alkalinity to normal was not associated with improvement in the condition of the animal in excess of that probably due to the volume of fluid injected.

4. *Shock Production Without Decrease in Reserve Alkalinity.*—By the injection of sodium bicarbonate the reserve alkalinity was maintained within the normal range. By the usual methods, the animal was reduced to a state of profound shock. No increased resistance to shock was noted by so maintaining the reserve alkalinity.

5. *Experimental Acidosis.*—By the intravenous injection of lactic acid a primary acidosis was produced. By the injection of acid the reserve alkalinity could be lowered at will. When the reserve alkalinity had been lowered within the range observed in shocked animals, no change could be noted in the condition of the animal. It was necessary to lower the reserve alkalinity from 10 to 15 per cent. of carbon dioxid by volume below the range of shocked animals before a material fall in blood pressure occurred. The further injection of acid produced a rapid fall in blood pressure to a very low level, with cardiac and respiratory failure. At this point artificial respiration and cardiac massage alone were ineffectual, but, combined with the injection of sodium bicarbonate, produced prompt recovery and return of reserve alkalinity to normal.

SUMMARY OF RESULTS

In the type of experimental shock studied there was a gradual decrease in the reserve alkalinity of the blood. The decrease varied in different animals. Anesthesia was an important factor. In some instances, the reserve alkalinity in shock was as great as in other animals before shock. This shows that acidosis was not an important causative factor. In no case was a change in reserve alkalinity sufficient to account for the condition observed.

In experimental primary acidosis the alkali reserve may be lowered to a degree observed in shock without producing any marked change in the condition of the animal.

The injection of sodium bicarbonate into animals reduced to a terminal state by injection of acid resulted in prompt recovery.

The injection of sodium bicarbonate into animals in shock was without beneficial action, although the reserve alkali was restored.

Shock may be induced while the alkali reserve is maintained by injection of sodium bicarbonate.

CONCLUSION

In the type of experimental shock studied, acidosis was not the cause but one of the many secondary changes associated with the condition.

6. Henderson, L. J.: The Theory of Neutrality Regulation in the Animal Organism, Am. Jour. Physiol., 1908, **21**, 427; Das Gleichgewicht zwischen Basen und Säuren im tierischen Organismus, Ergebn. d. Physiol., 1909, **8**, 254.

7. Van Slyke, D. D., and Cullen, G. E.: Studies of Acidosis, Jour. Biol. Chem., 1917, **30**, 289.

Health Conditions in Newark.—The death rate of Newark during 1917, according to the *Monthly Bulletin* of the department of health, was 15.3 per thousand on an estimated population of 405,000, as against a rate of 16.5 for 1916. There was a total of 6,205 deaths, the figures for the extreme of life being 1,461 under 5 years and 2,892 at 45 and above. There were 11,824 births, a rate of 29.1 per thousand, as against 29.7 for 1916. There were 1,038 deaths under 1 year, a rate of 87.8 per thousand births. This is a decrease of 1.8 from the rate for 1916. Deaths for the six chief contagious diseases, including poliomyelitis, were 304 as against 851 for 1916 when the epidemic of poliomyelitis swelled the figures, which were 376 for 1916, as against 11 for 1917.

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SATURDAY, MARCH 23, 1918

THYROID HYPERPLASIA AND IODIN

In view of the widespread distribution of simple goiter in the United States as well as in those countries which have been the classic localities of thyroid enlargement in considerable portions of the population, it is rather surprising that so little attention has been paid to the subject. The hopeful aspect of the goiter problem lies in the fact that the malady is almost always easily avertible. The magnitude of the incidence of thyroid enlargement in man is indicated by the suggestive investigations which Marine and Kimball[1] of Western Reserve University have conducted in the interest of the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association. In a complete census of the condition of the thyroid gland in girls from the fifth to the twelfth grades of the school population of a large community at the southern edge of the Great Lakes goiter district, they found that 2,184, or 56 per cent., had enlarged thyroids, 13 per cent. having well defined persistent thyroglossal stalks. These startling facts correspond with what might have been anticipated only by consideration of goiter statistics from some of the most conspicuous goiter regions of Europe.

To meet this situation a systematic scheme of administration of iodin in some form has been proposed. Its efficacy is admitted; and the widely adopted plans of school inspection by duly appointed medical experts seem to furnish an almost ideal opportunity for observing the results of a wholesale attempt to counteract the tendency to goiter that prevails in many localities. Wherever the thyroid hyperplasias have been encountered and carefully investigated, they have yielded to the iodin therapy. Marine and Kimball state that from the practical standpoint, the first instance of preventing goiter on a large scale was accidental and in connection with the sheep raising industry of Michigan. Prior to the discovery of salt deposits around the Great Lakes, the future of the industry seemed hopeless; but with the development of the salt industry and its use by the sheep growers, goiter rapidly decreased. The explanation is furnished by Marine. The salt contains appreciable quantities of both bromin and iodin, and in places these elements are extracted commercially. The second instance of goiter prevention on a large scale was in brook trout, and the disease was averted in the hatcheries by the use of small amounts of tincture of iodin added to the water.[2] Similar possibilities have been suggested to prevent the fetal myxedema of pigs and the hairless pig malady that has been definitely associated with a hyperplasia of the thyroid gland of this species.[3] We have already directed attention to the widespread experience, in the northwestern part of the United States, of the animal growers in obtaining young that are born dead and hairless, or, if alive when born hairless, die in a short time.[4]

There seems little doubt that the immediate cause of these thyroid disturbances is associated with a deficit of iodin in the gland itself. The avidity of this tissue for iodin is now well known, analyses of the hyperplastic glands confirm the deficit of the element, and the remedial response to iodin medication is an added indication of the correctness of the view just stated. The first impulse is to assume, in the light of what has been found, that a deficiency of essential iodin in the food supply is responsible for the pathologic condition so often observed in the thyroid of both man and animals. The extensive investigations now undertaken from the standpoint of animal nutrition have an immediate interest for human pathologic physiology. It has actually been shown that feeds from all parts of the country tend to be extremely low in their content of iodin; and there are no obvious distinctions that can be ascribed to different localities. Hart and Steenbock have accordingly formulated the query whether the primary cause of thyroid hyperplasia, such as they have observed in swine, may not be associated with a failure to absorb iodin from the digestive tract or to a faulty metabolism of the gland rather than to an extreme shortage of the element. They have observed that the same feeds which produce hairless and dead pigs can be so combined as to produce normal young. It thus seems that if certain unknown conditions are favorable, an animal may obtain from natural feeds the iodin required for both her own and the fetal thyroids. If unknown unfavorable conditions prevail, the animal may then obtain barely enough for her own thyroid activity and not enough for fetal thyroid development. In other words, a ration that is near the border line of deficiency in

1. Marine, David, and Kimball, O. P.: The Prevention of Simple Goiter in Man, Jour. Lab. and Clin. Med., 1917, **3**, 40.

2. Marine, David, and Lenhart, C. H.: Observations and Experiments on the So-Called Thyroid Carcinoma of Brook Trout, and Its Relation to Ordinary Goiter, Jour. Exper. Med., 1910, **12**, 311.

3. Smith, G. E.: Fetal Athyreosis: A Study of the Iodin Requirement of the Pregnant Cow, Jour. Biol. Chem., 1917, **29**, 215. Hart, E. B., and Steenbock, H.: Thyroid Hyperplasia and the Relation of Iodine to the Hairless Pig Malady, I, Jour. Biol. Chem., 1918, **33**, 313.

4. Fetal Athyreosis, editorial, The Journal A. M. A., July 7, 1917, p. 43.

iodin and, as Hart and Steenbock express it, slightly out of balance in some other respect, may affect some individuals more than others. This seems to be particularly true during the period of most rapid growth. In recognizing a corrective factor in iodin we need not overlook the possibility of deficient functions which are a secondary yet important consideration in the complete solution of the difficulty. None of the more recent experimental evidence, however, gives support to the hypothesis that the enlarged thyroid is the result of a specific infection.[5]

NEW PHYSIOLOGIC ASPECTS OF RADIOACTIVITY

The "laborious and diligent search after truth," which is the dictionary's interpretation of research, ordinarily exhibits so much of a routine character and so much reiterated effort in traditional directions that the suggestion of something novel is always decidedly refreshing. In this spirit we refer to somewhat startling observations by Zwaardemaker,[6] physiologist at the University of Utrecht, leading him to the hypothesis that radioactivity possesses peculiar significance for the automaticity of the heart beat. He has pointed out that of the comparatively small group of elements — essentially twelve in number — which make up animal tissues, two possess a very characteristic atomic property which may enable them to exert unusual influences. Iron is ferromagnetic, but this property is concealed by the presence of other elements in the body. Potassium is reputed to be radioactive.[7] Although its radioactivity is of extremely low order and therefore very little pronounced, the property remains in the compounds of the element, "so that it may be expected to reveal itself in the organism anywhere at any time."

The powerful effects of radium on living tissues are beginning to be appreciated. They are somewhat similar to those of intense ultraviolet light, but much more powerful. It is known that the negatively charged beta-particles of radium produce coagulation of oppositely charged colloids, and the effect appears to be an electrical one. It is a long step, however, from such pronounced effects to the more subtle possibilities suggested by an element so weakly radioactive as is potassium. Potassium is stated to emit exclusively beta-rays of a high penetrating power; but a photographic plate is said to be rendered appreciably black by potassium only after fifty-six days. Its ionizing power is a thousand times weaker than that of uranium, which in turn is a million times weaker than radium.

Zwaardemaker has attempted to detect any possible physiologic function of the feeble radioactivity of potasssium by ascertaining whether it can be replaced by other radioactive elements in such artificial perfusion fluids as that of Ringer. It is well known to the student of experimental physiology that the excised heart, which beats automatically when perfused by a suitable circulating medium, comes to a standstill when potassium is omitted from such a fluid. Zwaardemaker reports that solutions containing equiradioactive quantities of rubidium, thorium or uranium in place of potassium are quite effective. The remarkable equiactivity manifesting itself, says Zwaardemaker, in appropriate doses gave rise to the presumption that the substitution is feasible only on the ground of the radioactive, atomic property of these elements, and is not to be ascribed to any other factor. Not only radioactive elements administered internally to the surviving organ but also radiation in appropriate dosage was capable of sustaining the automaticity when potassium was lacking. We are promised demonstrations that the effect of radioactivity is decisive not only for the automaticity of the heart but also for a number of other functions, such as concern the vascular endothelium, the irritability of muscles, and other phenomena. Meanwhile, the possibility of insidious quackery based on these observations and hypotheses must be cautiously guarded against. A little knowledge is a dangerous thing — especially in the hands of an unscrupulous faker in medicine.

5. Burget, G. E.: Am. Jour. Physiol., 1917, **44**, 492.
6. Zwaardemaker, H.: Aequiradio-Activity, Am. Jour. Physiol., 1918, **45**, 147.
7. Campbell, N. R., and Wood: Proc. Cambridge Phil. Soc., 1906-1908, **14**, 15.

GENESIS OF THE EPIGASTRIC PAIN IN ULCER

Although the sensation of pain furnishes data of first importance to those who are concerned with the management of disease, the physiology and pathology of the pain sense have not yet received the careful scientific evaluation and analysis that their significance in medicine warrants. It has been said that for the evolution of the race as well as for the preservation of the individual, the pain sense is all important because it affords an expression in consciousness of the existence of nocuous factors liable to do damage to the tissues of the body. It seems strange that pain may result from changes in organs that are devoid of ordinary sensibility. Surgical manipulation of the intestine, for example, is not usually attended with any annoying sensation; yet a strong contraction of the muscular wall or increased distention of the intestine will evoke a griping pain. The ureters and other ducts in the body rarely give any evidence of themselves in our sensations until they are firmly contracted on some obstruction contained within their lumen.

Gastric and duodenal ulcers afford instances in which pain sensations give indications of peculiar value to the diagnostician. The pain is so characteristic in coming as a rule when the stomach is empty and in being relieved by the ingestion of food that the

incidence of the distress may give a clue to its differentiation from the pain of gastric cancer. Its periodicity also has been noted in contrast with the diffuse sensation commonly designated as gastralgia. The painful feeling awakened by the contact of an irritant like acid with an abraded surface of the skin or mucous membranes is sufficiently familiar in everyday experience to have suggested the view that the pains of gastric and duodenal ulcers are associated with acid irritation of hyperexcitable nerve endings or exposed nerve fibers in the ulcer area. This is the most widely current hypothesis of the genesis of certain epigastric pains.

In harmony with the theory just suggested is the frequent occurrence of the so-called gastric hyperacidity in cases of gastric and duodenal ulcer, and the temporary alleviation of the ulcer pain by food and alkalis. In a recent study of the origin of the epigastric pains in cases of gastric and duodenal ulcer, Carlson[1] has pointed out certain facts that are not readily explained by the "acid corrosion" theory. For example, gastric ulcer with or without clinical hyperacidity may be present without pain. Gastric ulcer and ulcer pain may be associated with normal acidity, and even with hypacidity. The pains of gastric ulcer may be present and be temporarily relieved by food or alkalis, even though the stomach contents are alkaline. The introduction of acids (0.5 per cent. of hydrochloric acid) into the stomach does not, or at least not invariably, induce or augment the ulcer pains in gastric ulcer patients. The ulcer pains usually show a periodicity (being described as "gnawing" or "boring"), and the periods are too short to be explained by variations in the gastric acidity. An alternative hypothesis connects the pain with contractile phenomena of the stomach.

The association of periodic pangs of hunger with the coincident contractions of the empty stomach has become an accepted fact in physiology. Carlson has reinvestigated the problem of distress in cases of well diagnosed ulcer by the use of graphic methods of recording gastric contractions associated with chemical analysis of the gastric contents. He has established anew the frequent lack of parallelism between ulcer pains and gastric acidity. Indeed, within certain limits the motility of the stomach is independent of the chemical reaction of the stomach contents.

As the result of his studies, Carlson states that all the evidence now points to the fact that the pains of gastric and duodenal ulcers are contraction pains arising either in the stomach or in the pylorus and upper part of the duodenum. In the case of the stomach the contractions are usually not stronger than those of normal digestion peristalsis of the filled or the hunger tonus rhythm of the empty stomach. This points clearly to a condition of hyperexcitability of the gastric pain nerves in the ulcer-patients experiencing the typical ulcer pains. Since, Carlson adds, the ulcer pains are due to tension of excessive contractions or of normal contractions on hyperexcitable pain nerves, it is evident that pathologic states other than ulcer, inducing such hyperexcitability or hypermotility, will cause symptoms of gastric ulcer pains practically identical with those of ulcer, as appears to be the case in many instances of appendicitis, cholecystitis and achylia.

These findings regarding the genesis of gastric ulcer pains have been corroborated in carefully diagnosed clinical cases observed at the Presbyterian Hospital in Chicago by Hardt.[2] He, too, noted that the ulcer pains may be absent in the presence of high acidity, and present in the absence of acid in the stomach. Hardt states that any active process, such as an ulcer or carcinoma, which produces a hyperirritable condition may result in pain; but the pains are intermittent and, as may now be suspected, they are synchronous with the contractions of the stomach, pylorus or duodenum. Furthermore, they bear no relation to the degree of acidity that is either naturally present or induced by feeding.

It follows from these associations of ulcer pains with the tonus and contractions of the body of the stomach that any measure which inhibits or decreases the gastric tonus (ingestion of food, water, alkalis or acids, passing of the stomach tube, etc.) will temporarily ease the pains, irrespective of the chemical reaction of the stomach content. Continuous epigastric pain in ulcer cases may thus be attributable to a persistent hypertonus of the stomach or pylorus. If we accept this analysis of a much debated problem, it is easy to accept Carlson's further reminder that the elimination of the ulcer pain is no criterion of healing of the ulcer. This criterion, he bluntly states, satisfies only the ignorant patient and the careless clinician.

1. Carlson, A. J.: Contributions to the Physiology of the Stomach, XLIV, The Origin of the Epigastric Pains in Cases of Gastric and Duodenal Ulcer, Am. Jour. Physiol., 1917, **45**, 81.

PEANUTS AS FOOD

"Nuts in general," says Sherman,[3] "being rich in both protein and fat, are comparable with meats as food and may be used interchangeably with meat in the diet; in fact, they are being so used to an increasing extent. With the constant tendency toward higher cost of meat, and with growing knowledge of nut culture, we may look for a much larger use of nuts as 'meat substitutes.' Even at the present prices the economy of nuts both as sources of energy and of protein will doubtless be surprising to many who have not previously compared the composition and cost of typical articles of these groups." The exigencies of war time have prepared our population to

2. Hardt, Leo L. J.: Pain in the Active Pathologic Processes in Stomach or Duodenum, The Journal A. M. A., this issue, p. 837.

3. Sherman, H. C.: Food Products, New York, 1914, p. 345.

accept or try radical alterations in their dietary customs to a degree that would scarcely have been expected during normal periods of peace. The effort to obtain calories at a low cost is, however, attended with certain possibilities of danger to nutrition if energy value is made the sole criterion of our food propaganda. The importance of taking into account other equally indispensable factors in the diet has often been emphasized in THE JOURNAL. Therefore we can only urge that every pronounced dietary innovation shall be investigated with due appreciation of all the requirements that the newer study of nutrition has established for an adequate ration.

This has recently been done in a most satisfactory way for the peanut, a food which has steadily grown in popularity so that it seems about to be transferred from the category of a delicacy to that of a more staple item in the diet. The peanut enters into the preparation of most of the vegetable "meat substitutes" long warmly advocated by the vegetarians and now made more conspicuous by the governmental admonition to "eat less meat"; and peanut "butters" or "pastes" are widely used. Today the value of the peanut crop, which is divided between the production of the promising peanut oil, peanut cake for animal fodder, and roasted peanuts for human food, has begun to total many millions of dollars. At the University of Wisconsin, Daniels and Loughlin[4] have demonstrated by feeding experiments on animals that the peanut can supply adequate protein, that is, all of the essential amino acids, in sufficient proportions for growth and reproduction. It also can furnish an abundance of the water-soluble vitamin. The food as used in the human dietary does not, however, yield the growth-promoting fat-soluble vitamin, which has come to be recognized as a remarkable constituent of butter fat and egg fat; nor are the inorganic constituents adequate in quality to supply sufficient calcium and certain elements. Of course, the peanut is not used as a sole source of nutrients for man; nevertheless, the delineation of its physiologic value enables one to define more intelligently the place which it can take in the ration. Daniels and Loughlin foresee an increasing usefulness for the peanut, now that its real value has been scientifically established. When we consider the broad areas, they say, which may be adapted for growing the crop, and the fact that our food supply tends toward a wider use of the seeds of plants, it seems appropriate to expect that the peanut, when rightly supplemented, will form a staple article of the human dietary. Like the soy bean, which has lately come into new prominence in American homes, the peanut needs only to have added suitable inorganic salts and the fat-soluble accessory to make it a complete food.

4. Daniels, Amy L., and Loughlin, Rosemary: Feeding Experiments with Peanuts, Jour. Biol. Chem., 1918, **33**, 295.

SUGAR AND WORKING POWER

There can be no longer any doubt that the great function of carbohydrate food is to afford energy. This does not mean that other types of foodstuffs are useless in this respect; on the contrary, it is easy to foresee and to devise conditions in which fats and proteins are responsible for the energy metabolism. In starvation, for example, carbohydrate is not directly available; but under normal conditions of diet, approximately two thirds of the entire calorific intake is derived from carbohydrates by the average person with no extreme eccentricities in his eating habits. Half a century ago, physiologists were inclined to attribute a superior value to proteins in the performance of muscle work, the supreme manifestation of the transformation of energy in the body. Today it need scarcely be argued that, so long as work is not excessive and does not lead to pathologic consequences, with an abundance of all types of foodstuffs in the diet, there is practically no change in the nitrogen output, i. e., there is no evidence of protein disintegration from it.

Anderson and Lusk[1] have just furnished even more direct evidence of the superior value of carbohydrate in muscular activity. In calorimetric observations on animals, they found that the quantity of energy required to move a unit of body substance a definite distance through space is a constant factor that is independent of the condition of the body. It matters not whether the subject is in the best nutritive condition or has lost as much as one fifth of his weight through fasting: the quantity of energy required to do a definite amount of work remains the same.

It is known that the metabolites of the foodstuffs, but notably of proteins, induce an extra heat production in the body which is commonly described as their specific dynamic action. They stimulate metabolism independently of the use to which they are put in the organism. Anderson and Lusk have found that whereas on a meat or high protein diet the increment of energy required to perform a definite amount of mechanical work is added to the specific dynamic quota that meat ingestion contributes to the basal metabolism, the metabolites of glucose induce no such extra heat production. When mechanical work is accomplished during the hours following a large ingestion of glucose, the metabolism rises to about the same height as when the same amount of work is done during a period when the gastro-intestinal tract is free from food. There is no "waste" of energy in useless heat production. This economy of carbohydrates for the accomplishment of work deserves to be emphasized at a time when food fuel is in great demand and the superior value of meat is still lauded. Whatever

1. Anderson, R. J., and Lusk, Graham: Animal Calorimetry: The Interrelation Between Diet and Body Condition, and the Energy Production During Mechanical Work, Jour. Biol. Chem., 1917, **32**, 421.

significance meat may have as a highly palatable form of protein food must not be confused with the discarded claims of its superiority as a source of energy for our working machine.

Current Comment

THE GROUND GLASS OBSESSION

Rumors continue to appear to the effect that ground glass has been found in food and that an investigation is to be made by the federal government. During the last two or three years we have passed through a whole series of such nation-wide "scares." Our readers may remember the vogue of infected court-plaster, of the insertion of various organisms into bandages and dressings, of the finding of numerous alleged bombs in different localities. Today ground glass holds the stage. Just why any intelligent spy, or even an unintelligent German diplomat, should choose ground glass to kill off a community is problematical. Neither has any one explained how enemy sympathizers are going to avoid the alleged manipulated foodstuffs. In works on forensic medicine and toxicology ground glass is mentioned as a mechanical poison. When the glass is coarsely ground it produces mechanical lesions of the lining of the gastro-intestinal canal which become infected. Ultimately the condition resembles a catarrhal and hemorrhagic inflammation. Both may result from perforation of the stomach or bowel, or from infection of the wounds and extension of the inflammation. A meal of very finely ground glass is regarded by some as harmless, and it has been reported that it is even used as a remedy among the peasants of eastern Europe. The concealing of ground glass in flour or in sugar, the two substances most commonly mentioned in the newspapers — any amateur psychologist can figure out why — would necessitate that it be ground very fine. These stories may have a certain value in keeping the public alive to the dangers of the spy peril. On the other hand, they stimulate cranks and other unbalanced persons to "go and do likewise," thus lending a substantial basis to the original imaginative stories.

SOME ODDITIES IN FOODS

War time needs or threatened deprivations of food have served in many unexpected ways to elicit knowledge of hitherto little used products that may be incorporated into the dietary. The soy bean has been brought into a new prominence in this country, where it was until recently for the most part used only as a food for diabetics. The dasheen has become more familiar, though its deserts are still far from being appreciated. The admonition to eat more fish has tended to increase the names, if not the actual varieties, of this class of foods; thus the grayfish has taken its place alongside the bluefish and whitefish — and the colors of the rainbow are not yet exhausted in providing an attractive new nomenclature for old species. A prominent American scientist has brought new notoriety to the whale by serving its flesh as a delicacy to his colleagues at a widely heralded dinner in New York. A well known surgeon has called attention in public print to the "wicked waste of good meat" in the thousands of tons of the flesh of seals that are left unutilized by the sealing fleet in the North. The animals that are taken at this time of year are the young of the harp seal, which are "living on their mother's milk in the killing season, and are tender and excellent for food purposes." Perhaps a surprise even greater has been prepared for us by the Bureau of Biological Survey in classing the fur-bearing muskrat as a source of human food. The government's biologist, Dr. Lantz,[1] frankly admits that one writer condemns the musky flavor of the muskrat as something that "would keep any but the starving from eating it." But in view of the ancient admonition *de gustibus non est disputandum*, and the assurance that a number of persons have likened the flavor of the muskrat to that of the famous terrapin of the Chesapeake, we ought not to conceal the new food possibilities from American epicures, if there are any such individuals left. At any rate, Lantz assures us that in the retail markets of Philadelphia, Baltimore, Wilmington and other cities, the animals in question, trapped primarily for their pelt, are sold as "marsh rabbits," although no attempt is made to conceal the fact that they are muskrats.

THE CHLORID CONTENT OF THE BLOOD PLASMA

It has been emphasized of late, as never before, that the proper performance of physiologic functions in health is conditioned by "the accurate adjustment and preservation of temperature, molecular concentration and neutrality." The extent to which this is normally accomplished is strikingly illustrated by the composition of the blood, which is regulated to a nicety so as to present a minimum of variation under widely varying conditions. The kidneys, the respiratory apparatus and the tissues serve, as the case may be, to facilitate or prevent the withdrawal of blood constituents to the end that fixity of composition in the circulating medium may be attained. The content of protein is little altered in health; the sugar and non-nitrogenous components tend to approach a stationary level; the hydrogen ion concentration is singularly constant, and the alkali reserve is continually being adjusted toward a normal standard. The same tendency has been exhibited anew in the recent studies of Austin and Jonas[2] of the William Pepper Laboratory of Clinical Medicine, at the University of Pennsylvania, on the effects of diet on the plasma chlorid and chlorid excretion. They showed that it is not possible to raise the level of the plasma chlorids other than in transient manner by a prolonged regimen on a high chlorid diet, or to lower the plasma chlorids below the normal level even by a prolonged regimen on a very low chlorid

1. Lantz, D. E.: The Muskrat as a Fur Bearer, with Notes on Its Use as Food, Farmers' Bull. 869, U. S. Dept. Agric., September, 1917.
2. Austin, J. H., and Jonas, L.: Effects of Diet on the Plasma Chlorides and Chloride Excretion in the Dog, Jour. Biol. Chem., 1918, 33, 91.

diet. The kidneys, in health, evidently have a surprisingly constant threshold for the excretion of substances contained in the blood. This applies, for example, to sugar and to alkalis or acids. The new experiments of Austin and Jonas verify the evidence of McLean[3] for the constancy of the chlorid threshold, showing that a definite rise in plasma chlorids provokes a definite increment in the urinary excretion. In pathologic cases, however, one notes in the case of chlorid elimination what is seen to be true of other regulatory manifestations, namely, an occasional failure. In the pathologic kidney there may be either an alteration in the threshold or a disturbance in the degree of renal response to increments in the plasma chlorids above the threshold.

THE HUNGER SENSATION IN FASTING

In numerous descriptions of the experiences of man in the course of more or less prolonged fasting, one meets the repeated assertion that after a brief initial period little or no hunger whatever is felt. Since it has been well established that the sensation of hunger is induced by a certain type of tonic and peristaltic contractions of the empty or nearly empty stomach,[4] it must be assumed either that these contractions are abolished as a fast proceeds or that the sensations are decidedly modified. Professor Carlson of the University of Chicago, to whom we owe so many fundamental researches in this field, has lately had an exceptional opportunity to investigate these questions.[5] As the result of careful observations on man during prolonged intentional starvation, Carlson found that during the fifteen days' complete fast and the subsequent eight days of abstinence from food with daily ingestion of cotton fiber, the gastric hunger contractions of his subjects continued with practically normal rhythm and intensity; but the subjective sensations induced by the gastric contractions appeared to be somewhat weakened and tinged with an element of general epigastric distress or sick stomach. The view that hunger mechanism fails early in prolonged fasting is therefore not tenable as a general law. This is of more than passing significance to the physician, who has at times to reckon with the possibility of hunger sensations in enforced inanition. In tentative explanation of the current beliefs that he has controverted, Carlson says:

> Most of the evidence tending to show suppression of hunger after a few days' fasting consists of the statements of professional fasters or persons fasting to improve their health. Many of these persons have a fixed faith in fasting as a cure-all; hence they tend to ignore or deny most discomforts of starvation. The professional faster may do so in the spirit of bravado, and where the elements of faith or bravado are not in evidence the statement of the fasting person is observed by the usual confusion of the sensations of the pangs of hunger with the appetite for food. In prolonged fasting the latter is interfered with in many persons by a persistent bad taste in the mouth.

3. McLean, F. C.: The Numerical Laws Governing the Rate of Excretion of Urea and Chlorides in Man, Jour. Exper. Med., 1915, 22, 212.
4. Carlson, A. J.: The Control of Hunger in Health and Disease, Chicago, 1916.
5. Carlson, A. J.: Contributions to the Physiology of the Stomach, XLV, Hunger, Appetite and Gastric Juice Secretion in Man During Prolonged Fasting (Fifteen Days), Am. Jour. Physiol., 1918, 45, 120.

Medical Mobilization and the War

Amendment to Owen Bill

Senator Owen has proposed the following amendment to his bill asking increased rank for members of the medical department of the Army: "Nothing in this act shall be construed to deprive any officer of the Medical Corps of the United States Army of a commission he now holds."

Bill to Furnish Uniforms of Officers

Senate Bill 3433, requiring the government to furnish uniforms of officers of the Army, has passed the Senate and is now resting in the Committee of Military Affairs of the House. This bill provides that all uniforms, accoutrements and equipment required for any officer of the military forces of the United States shall be furnished and issued to such officers by the government at cost price under regulations to be prescribed by the Secretary of War, and that they shall be similar in quality and price for all officers of the same rank.

New Assignment to Provost-Marshal-General's Office

A few weeks ago we announced that Major Frank Billings had been assigned to the Provost-Marshal-General's Office, to have charge of the medical work connected with the selective service. Major Billings has now been transferred to the Surgeon-General's Office, to act as director of the Division of Reconstruction in that office. The Provost-Marshal-General requested the Surgeon-General to commission Dr. Hubert Work, Pueblo, Colo., and to assign him to the Provost-Marshal-General's Office to take the place made vacant by Major Billings. This has been done and Dr. Work is now in Washington.

Personnel of the Medical Department

For the week ending March 15, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 799, including 1 major-general, 66 colonels, 102 lieutenant-colonels, 177 majors, 2 captains and 451 lieutenants.

MEDICAL RESERVE CORPS: 18,037, including 1,085 majors, 4,163 captains and 13,789 lieutenants. On active duty: 14,655, including 937 majors, 3,579 captains and 10,139 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,242, including 11 lieutenant-colonels, 257 majors, 151 captains and 825 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 76, including 4 brigadier-generals, 12 colonels, 55 lieutenant-colonels and 5 majors.

The DENTAL CORPS, 210; DENTAL RESERVE CORPS, 5,124, of whom 1,337 are on active duty; DENTAL CORPS, N. G., 261; VETERINARY CORPS, 24; VETERINARY RESERVE CORPS, 1,421, of whom 794 are on active duty; VETERINARY CORPS, N. G., 57; VETERINARY CORPS, N. A., 297; SANITARY CORPS, 947, and AMBULANCE SERVICE, 142 constitute the remainder of the commissioned personnel.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

From Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending March 8, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (DISEASE ONLY):	
All Troops	1,412.8
National Guard Camps	1,103.6
National Army Camps	1,731.2
Regular Army	1,221.8
2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:	
All Troops	47.5
National Guard Camps	42.1
National Army Camps	54.2
Regular Army	42.0
3. ANNUAL DEATH RATE PER 1,000 (DISEASE ONLY):	
All Troops	6.6
National Guard Camps	6.2
National Army Camps	6.0
Regular Army	7.5

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING MARCH 8, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal	Measles	Meningitis	Scarlet Fever	Deaths	Annual Admission Rate per 1,000 (Disease Only)	Noneffective per 1,000
Wadsworth	10	..	..	17	4	..	...	1	537.1	23.7
Hancock	4	..	1	15	9	..	..	3	437.1	25.1
McClellan	...	..	..	23	10	..	..	3	728.0	30.3
Sevier	14	..	1	23	1	3	..	2	1,756.1	70.5
Wheeler	13	1	3	35	...	1	...	4	1,280.2	42.2
Logan	4	..	2	146	22	2	1	3	1,586.0	44.0
Cody	11	..	..	2	1	..	...	6	578.5	35.2
Doniphan	5	..	..	18	...	..	3	5	1,702.3	46.9
Bowie	15	..	1	52	...	2	...	6	1,717.4	58.0
Sheridan	2	..	..	7	1	..	2	0	544.7	34.2
Shelby	4	1	..	24	1	1	...	5	1,286.1	52.9
Beauregard	3	..	2	18	1	3	...	3	1,299.4	54.5
Kearny	2	..	..	2	2	..	7	1	1,160.6	46.7
Devens	12	..	..	63	10	..	...	4	1,377.1	39.4
Upton	21	..	..	40	1	..	3	6	1,140.8	28.7
Dix	5	..	..	82	5	1	10	1	2,365.4	51.4
Meade	8	..	..	23	19	1	13	3	860.7	35.8
Lee	15	..	1	116	9	1	...	4	1,523.5	56.7
Jackson	6	..	..	302	6	..	...	3	2,005.0	59.3
Gordon	6	..	..	178	8	2	...	2	1,626.2	37.6
Sherman	12	..	..	47	90	1	29	4	1,745.0	61.5
Taylor	15	..	..	41	23	..	...	1	1,725.7	68.2
Custer	...	..	..	14	6	2	4	3	990.9	45.7
Grant	11	..	..	28	20	..	5	2	1,029.3	30.1
Pike	24	..	1	127	19	..	9	4	3,084.1	84.1
Dodge	19	..	..	121	52	..	7	3	1,744.1	48.1
Funston	10	1	..	45	...	3	4	5	2,017.2	82.8
Travis	29	1	3	52	23	1	2	2	2,975.7	68.9
Lewis	9	..	..	17	44	..	35	6	1,502.2	78.6
N. E. Department	...	..	..	14	7	..	...	1	1,177.6	30.3
Eastern Dept.	11	..	..	29	18	1	1	3	843.6	26.6
S. E. Department	2	..	4	25	17	2	4	6	1,015.2	48.7
Southern Dept.	16	..	..	71	55	2	14	10	1,066.6	39.9
Central Dept.	6	..	..	22	21	..	7	4	1,487.9	43.2
Western Dept.	9	..	..	30	39	..	5	9	1,136.2	32.4
Aviation, S. C.	21	..	..	91	133	3	12	17	1,381.2	45.4
Camp Greene	8	..	1	36	15	4	6	2	864.7	33.5
Camp Fremont	6	..	1	39	15	..	...	0	1,099.1	43.3
El Paso	...	..	..	5	12	..	1	0	1,012.3	6.5
Fort Slocum	2	..	..	11	8	..	...	0	1,840.0	39.1
Columbus Bks.	1	..	..	16	1	..	3	0	1,876.5	51.3
Fort Thomas	...	..	..	1	...	..	...	0	1,108.8	53.0
Jefferson Bks.	1	..	..	10	5	..	13	5	2,272.3	117.2
Fort Logan	1	..	..	1	22	..	5	1	2,496.6	70.8
Fort McDowell	...	..	..	5	5	..	1	0	1,132.1	52.7
D.B.Ft.Leavenworth	...	..	..	....	...	..	...	0	1,692.4	35.2
D.B. Alcatraz	...	..	..	....	...	..	...	0	852.5	13.1
Aberdeen, P. G.	...	..	..	....	1	..	1	1	1,368.4	29.2
A. A. Humphreys	...	..	..	9	...	..	...	0	1,273.5	12.2
J. E. Johnston	...	..	..	27	4	1	1	1	940.1	33.5
Edgewood	...	..	..	....	...	1	...	0	1,642.1	140.3
Camp Merritt	16	..	..	65	16	1	26	5	1,944.8	74.2
Camp Stuart	9	..	..	11	6	..	1	4	1,694.7	54.2
West Point, N. Y.	1	..	..	1	7	..	...	0	1,053.8	17.4
General Hosp. No. 1.	...	..	..	....	...	..	...	1		
N. G. Departments	4	..	..	12	33	..	1	2		
N. A. Departments	25	4	1	181	50	..	14	3		
Total (all troops).	435	8	22	2,390	877	39	256	171	1,412.2	47.5

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending Mar. 8, 1918	Regulars in U. S., Week Ending Mar. 8, 1918	National Guard, All Camps, Week Ending Mar. 8, 1918	National Army, All Camps, Week Ending Mar. 8, 1918	Expeditionary Forces, Week Ending Feb. 28, 1918
Pneumonia	18.2	15.1	13.5	22.8	26.0
Dysentery	0.3	0.0	0.3	0.2	0.2
Malaria	1.00.2	67.2	1.5	0.5	0.0
Venereal	100.2	67.2	59.1	146.3	44.2
Paratyphoid	0.0	0.0	0.0	0.0	0.0
Typhoid	0.0	0.0	0.0	0.0	0.4
Measles	36.7	52.7	8.0	37.8	13.7
Meningitis	1.6	1.9	1.8	1.3	3.0
Scarlet fever	10.7	13.1	2.9	13.6	13.4

NEWS OF THE CANTONMENTS

Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

Capt. Charles Griffith, M. R. C., has brought his family to Hampton Terrace Annex, North Augusta.

The following first lieutenants of the Medical Corps have been promoted to captains as the result of their service and examinations: Bixby, Allen, Harper, Hemphill, Fisher, Lewis, Ross, Steinmetz, Toland, Stahr, Washburne.

The entire Twenty-Eighth Division gave a very creditable review before Secretary of State Lansing, Saturday, March 8.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

MARCH 18, 1918.

ARTICLES OF WAR

Through ignorance of the proper numbering of the Articles of War, in referring to the court martial of Major Milton Board, and relying on a press account of it, I stated in the last issue of THE JOURNAL that Major Board was being tried for a violation of the Eighty-Fifth Article of War. The Eighty-Fifth Article of War refers to drunkenness and conduct unbecoming an officer, and as we know Major Board has never drunk intoxicants I am glad to state his trial was for violation of the Ninety-Sixth Article of War, the charges being that he wrongfully dismissed a patient from the hospital who was at the point of death. When there is not any other Article of War an officer can be court martialed under, the Ninety-Sixth Article covering them all. The trial of Major Board was concluded last week, and the result will probably not be known for several weeks, as it must be reviewed by the commanding general and approved by the War Department before an announcement will be made.

EXAMINATION OF FOOD

Arrangements have been made for the proper chemical examination of foods suspected of containing material deleterious to the health at Camp Zachary Taylor and mess officers may send suspected food to the Bureau of Chemistry, U. S. Department of Agriculture, at Cincinnati for analysis.

BASE HOSPITAL UNIT NO. 40

Miss Elizabeth Bogle, chief nurse of the Good Samaritan Base Hospital, Unit No. 40, has received a telegram from the War Department that all of the one hundred nurses of the unit would be assigned to duty within the next ten days at some of the army cantonments. The nurses will not go in a body, but will be assigned in small numbers to duty in the various cantonments. This is to be a sort of preliminary training, preparing them to join the enlisted personnel which is now training at Camp Zachary Taylor and which will leave soon for overseas. All of the nurses of this unit will be required to furnish recommendations from influential citizens concerning their loyalty to the United States.

Dr. David Barrow, Major, M. R. C., is in charge of this unit, and Capt. Virgil Simpson, M. R. C., is in charge of the enlisted personnel which is at Camp Zachary Taylor.

ONLY DEATH IN TEN DAYS

Only one death in ten days is the record at Camp Zachary Taylor. Physicians say that this is an indication that with pretty weather hardly a healthier site in the country could be found than Camp Zachary Taylor. Even in civil life many deaths would have occurred among 30,000 or more men, but the death rate of Camp Zachary Taylor, even with the most severe winter in the history of the city, was not large.

Capt. Matthew Neil, Sanitary Corps, has been appointed division medical supply officer and will report for duty to take up his new work in the office of the division surgeon.

FIRST LIEUTENANTS OF THE MEDICAL RESERVE CORPS RECOMMENDED FOR PROMOTION AS CAPTAINS, MARCH 14, 1918

JOHN FRANKLIN ALLEN, Omaha; NELSON KINGSBURY, Newark, N. J.; MORGAN LELAND CLINT, Meadville, Mo.; LAFAYETTE THOMAS COX, Napoleon, Ind; MODIE EZRA CUNNINGHAM, Birmingham, Ala.; RAYMOND CANFIELD DODD, Glen Ridge, N. J.; EDWIN CLARENCE FUNSCH, St. Louis; CARL GOEHRING, Pittsburgh; PURSIFOR FRAZIER GUIE, Manheim, Pa.; ROBERT ROY HAMPTON, Salt Lake City; CARLETON GALE KELSEY, Hinckley, Minn.; LAUREN NORTON LINDENBERGER, Cincinnati; CHARLES BAILEY REED, Newburgh, N. Y.; ADDISON MAY ROTHROCK, Reading, Pa.; HARRY CHRISTIAN SCHMEISSER, New York City; DENNIS EDWARD SINGLETON, Clarence, Mo.; WALTER LEO SMALL, Kansas City, Mo.; RALPH WITT STALEY, Cincinnati; CLYDE KRESS STARTZMAN, Bellefontaine, Ohio; JOHN WESLEY TIPPIE, Cleveland.

ORDERS TO OFFICERS OF THE MEDICAL CORPS

To Fort Sam Houston, Texas, for duty, from Newport News, Cols. CHARLES LYNCH, JERE B. CLAYTON, from Fort Bliss Lieut. JAMES S. SIMMONS.

To Newport News, Va., for duty, from Fort Sam Houston, Texas, Col. CHARLES LYNCH. For inspection and on completion *to his proper station,* Col. PEARCE BAILEY. Base hospital, from Fishers Island, N. Y., Lieut.-Col. WILLIAM S. TERRIBERRY.

To New York City, for duty and on completion *to their proper stations,* Col. ROBERT E. NOBLE, Lieut. PAUL H. McNABB.

To Washington, D. C., George Washington University Medical School, as instructor, Col. LOUIS A. LAGARDE. For consultation and on completion *to his proper station*, from Allentown, Col. ELBERT E. PERSONS; from Camp Dix, Lieut.-Col. GEORGE M. EKWURSEL; from Camp Sherman, Lieut.-Col. WALLACE DE WITT; from Camp Upton, Lieut.-Col. CHARLES R. REYNOLDS; from Asheville, N. C., Lieut.-Col. WILLIAM H. SMITH. For duty, from Fort Oglethorpe, Lieut.-Col. GEORGE H. SCOTT; from Surgeon-General's Office, Major JOHN O. SKINNER.

To Allentown, Pa., Concentration Camp, from Army Medical School, Lieut.-Col. HAROLD W. JONES; from Fort McHenry, Major CLARENCE R. BELL.

To Camp Cody, Deming, N. M., *Camp Kearny*, Linda Vista, Calif.; *Balloon School*, Los Angeles, Calif., *Camp Fremont*, Palo Alto, Calif., *Letterman General Hospital, Fort McDowell and U. S. Disciplinary Barracks*, Benecia, Calif., *Vancouver, Wash., Camp Lewis*, American Lake, Wash., and *Fort Douglas, Utah*, for inspection and on completion *to his proper station*, Lieut.-Col. FRANK W. WEED.

To Camp Dodge, Des Moines, Iowa, for duty, from Camp Dodge, Major CLARENCE E. FRONK.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Riley, Major THOMAS J. LEARY. For duty, from Camp Jackson, Major JAMES F. JOHNSTON.

To Camp Logan, Houston, Texas, for duty, from Camp Logan, Major HENRY P. CARTER, Lieut. PERCY K. TELFORD.

To Camp Sevier, Greenville, S. C., for temporary duty, from Camp Sevier, Majors BAXTER R. HUNTER, JAMES E. POORE; Lieut. WILLIAM C. STONE. For temporary duty and on completion *to his proper station*, from Camp Wadsworth, Lieut. HARRY J. WORTHING.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Camp Zachary Taylor, Major LUTHER R. FOUST; from Camp Dix, Lieut. VAL E. MILTENBERGER, from Fort Thomas, Lieut. PAUL B. HAWLEY.

To Camp Wheeler, Macon Ga., for duty and on completion *to his proper station*, from Camp Sheridan, Major CHARLES W. STONE. For temporary duty, from Camp Devens, Lieut. OTTIS L. GRAHAM.

To Camp Greene, Charlotte, N. C., for duty, from Camp Logan, Lieuts. SEYMOUR C. SCHWARTZ, WARD S. WELLS, JOHN R. WHISENANT.

To Camp Shelby, Hattiesburg, Miss., for temporary duty, from Fort McPherson, Ga., Lieut. JOHN R. DEVELLING.

To Corpus Christi, Texas, for temporary duty, from Camp Dodge, Lieut. FRANK S. MATLACK.

Lieut. WALTER F. TOLSON, who has passed the preliminary examination for appointment in the Medical Corps, will proceed *to Army Medical School* for instruction.

Honorably discharged on account of physical disability incurred in line of duty, Lieut. SETH H. SAVAGE.

The resignations of Major EUGENE SWAYNE, Capt. CHARLES E. WILLIAMS, Lieuts. WILLIAM W. MAXWELL, and C. I. TRULINGER, are accepted.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Army Medical School for instruction, Lieut. MONTE LE ROY MOORER, Mt. Vernon.

To Camp Lee, Petersburg, Va., base hospital, from Camp Dix, Lieut. BRYANT B. EDWARDS, Union Springs.

To Camp Travis, Fort Sam Houston, Texas, to examine the command for mental and nervous diseases, from Kelly Field, Lieut. ROBERT H. HOWARD, Tuskegee.

To Garden City, L. I., N. Y., for duty, from Fort Oglethorpe, Lieuts. HUGH W. HILL, Carrollton; WILLIAM R. ROUSSEAU, Huntersville.

To Fort Oglethorpe for instruction, from Camp McClellan, Capt. JOHN W. HOOPER, Roanoke. For instruction, Lieut. OLLIE P. BEARD, Birmingham.

To Fort Riley for instruction, from Camp Cody, Lieut. LLEWELLYN H. LEDBETTER, Goodwater.

To Markleton, Pa., for duty, from Camp Beauregard, Lieut. CLIFFORD V. MAYHALL, Elkmont.

To San Juan, Porto Rico, base hospital, Lieut. SAMUEL W. HORN, Birmingham.

Honorably discharged, Lieut. RICHARD B. McCANN, Seale. On account of physical disability existing prior to entrance into the service, Lieut. WADE H. ESSLINGER, Meridianville.

Resignations of Lieuts. LINTON S. ARCHER, Roanoke, and ROLAND C. EVANS, Sheffield, accepted.

Arizona

To Fort Thomas, Ky., for duty, from Fort George Wright, Major RALPH W. NEWTON, Yuma.

To Southern Department, Lieuts. LEE H. CURRAN, Oraibi; FRANCIS R. CARTNELL, Seligman.

To Washington, D. C., Aviation Section, Signal Corps, Capt. FREDERICK T. WRIGHT, Douglas.

Arkansas

To Camp Fremont, Palo Alto, Calif., for duty, from Presidio, Lieut. UREY G. DAVIS, Blytheville.

To Fort Oglethorpe for instruction, Lieut. MAURICE F. LAUTMAN, Hot Springs; from Camp Pike, Lieuts. HORACE W. GRAVES, Elm Spring; ISAAC S. BUTLER, Marshall.

To Fort Riley, for instruction, Lieuts. ERASMUS S. BAKER, Paragould, THERON E. FULLER, Texarkana.

To Rockefeller Institute for instruction and on completion *to Camp Devens*, Ayer, Mass., base hospital, from Camp Devens, Lieut. MAC McLENDON, Marianna.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieuts. HUGH C. BROOKE, Casa; BOULANGER GWALTNEY, Haskell.

Resignation of Lieut. ALBERT W. RYE, London, accepted.

California

To Camp Beauregard, Alexandria, La., base hospital, Major DONALD J. FRICK, Los Angeles.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieuts. WALTER M. HOLLORAN, GEORGE F. SCHENCK, Los Angeles; ROY F. RUTH, Upland.

To Camp Doniphan, Fort Sill, Okla., base hospital, Capt. LASHER HART, Los Angeles.

To Camp Fremont, Palo Alto, Calif., for duty, from Fort Barry, Major JOSEPH L. BELL, Fort Barry; from Presidio, Major HARRY S. MOORE, San Francisco; Capt. LEMUEL A. ANTHONY, Novato; from Fort MacArthur, Capt. WALTER O. HOWELL, San Francisco; from Fort Rosecrans, Capt. ALFRED H. BYARS, San Diego; from Western Department, Capt. DAVID B. FIELDS, Weaverville.

To Camp Lee, Petersburg, Va., from Boston, Capt. ALBERT M. MEADS, Oakland.

To Camp Lewis, American Lake, Wash., base hospital, Lieut. LEO. V. ROSENTHAL, Duarte.

To Fort Des Moines, Iowa, from Camp Dodge, Capt. WILLIAM J. HOSFORD, Santa Cruz.

To Fort Leavenworth, Kan., Department Laboratory, Lieut. GEO. H. TREVELYAN, Riverside.

To Fort McDowell, Calif., Lieut. JOSEPH H. D. ROGER, San Francisco.

To Fort Riley, Lieut. WALLACE DODGE, Los Angeles. For instruction, Lieut. JOHN T. KERGAN, Oakland; FRANK W. H. TAYLOR, San Diego; from Camp Kearny, Lieut. GEORGE L. A. HAMILTON, Los Angeles.

To Fort Sam Houston, Texas, for duty, from Camp Bowie, Major JAMES R. MOORE, Los Angeles.

To Los Angeles, Calif., for duty and on completion *to Camp Kearny*, Linda Vista, Calif., base hospital, Lieut. FREDERICK S. RAY, Los Angeles. For orthopedic instruction, Lieut. CHARLES A. WARMER, Ontario.

To Portland, Ore., for duty, from Fort Liscom, Capt. GEORGE NEWLOVE, Calepico.

To Western Department, Lieut. FRANK M. WHITING, Oroville.

To San Francisco, Calif., for instruction and on completion *to Camp Kearny*, Linda Vista, Calif., base hospital, Capt. CHARLES A. WAYLAND, San Jose. On completion *to Camp Lewis*, American Lake, Wash., base hospital, Lieut. OWEN M. HARRAH, Pasadena. On completion *to their proper stations* from Camp Kearny, Lieuts. JOHN G. NORMAN, Allegheny; TILTON E. TILLMAN, San Francisco. For duty, Lieuts. WILLIAM J. JACKSON, HERBERT R. D. SHOEMAKER, San Francisco.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieut. WILLIAM B. THOMPSON, Los Angeles.

Honorably discharged on account of physical disability existing prior to entrance into the service. Capt. GEORGE H. RICHARDSON, San Francisco; Lieut. ELMER O. HOUSTON, Oakland.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. WILLIAM R. SEVERSON, Los Angeles; Lieut. HERBERT P. NOTTAGE, Alameda.

Resignation of Lieut. CHARLES B. ALEXANDER, Alhambra, is accepted.

Colorado

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. HAROLD G. MACOMBER, Denver.

To Camp Kearny, Linda Vista, Calif., base hospital, Lieut. WILLIAM A. McGUGAN, Denver.

To Fort Riley for instruction, Lieut. SAMUEL B. McFARLAND, Longmont.

To Houston, Texas, Signal Corps Aviation School, Lieut. FRANK J. ERDLITZ, Pyrolite.

To Waco, Texas, Signal Corps Aviation Camp for duty, from Fort Riley, Lieut. CARLETON C. BOOTH, Cheyenne Wells.

To the inactive list, from Camp Doniphan, Lieut. RANULPH HUDSTON, Denver.

Resignation of Lieut. EDWIN D. BURKHARD, Delagua, accepted.

Connecticut

To Army Medical School, for instruction, Lieuts. WILLIAM C. McGUIRE, HERMAN R. WHITE, New Haven.

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. EDWARD A. BRACE, Ellington.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. JOHN F. SAGARINO, Hartford.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. RICHARD J. LAWTON, Terryville.

To Cape May, N. J., for duty, from Philadelphia, Capt. AUGUSTIN A. CRANE, Waterbury; from New York City, Lieut. DOUGLAS J. ROBERTS, Bridgeport.

To Fort Oglethorpe for instruction, Capt. WILLIAM H. STOCKWELL, Hartford; Lieuts. OWEN J. GROARK, Bridgeport; WILLIAM S. BARNES, New Haven.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. WILLIAM E. SMITH, Stamford.

To Williamsbridge, N. Y., for duty, Lieut. RAYMOND J. QUINN, Waterbury.

Delaware

To Fort Oglethorpe, for instruction, Lieuts. JOHN H. MULLIN, VICTOR D. WASHBURN, Wilmington.

District of Columbia

To Allentown, Pa., Concentration Camp, base hospital, from Fort McHenry, Lieut. JOSEPH D. STOUT, Washington.

To Camp Meade, Annapolis Junction, Md., base hospital, from Camp Meade, Capt. EDGAR D. THOMPSON, Washington.

To Fort McHenry, Md., for duty, from Camp Gordon, Lieut. JOSEPH D. STOUT, Washington.

To Fort Oglethorpe for instruction, Capt. NAYNARD J. SIMMONS; Lieuts. A. MAGRUDER MACDONALD, WILLIAM H. NORTON, Washington. For duty, Lieut. WILLIAM P. O'DONNELL, Washington.

To report to the Surgeon-General of the Army, for duty, Capt. MILTON C. WINTERNITZ, Washington.

To Williamsbridge, N. Y., for temporary duty, on completion for instruction *to Rockefeller Institute*, Lieut. JAMES A. CAHILL, Jr., Washington.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Capt. CHRISTOPHER J. MURPHY, Washington.

Florida

To Fort Riley for instruction, from Camp Kearny, Capt. RAYMOND B. McCLAWS, Tampa.

Georgia

To Atlanta, Ga., for duty, and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. JAMES P. McGEE, Atlanta.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. STEWART McBRYDE, Darien.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. JOHN B. FITTS, Atlanta.

To Camp Jackson, Columbia, S. C., as commanding officer of base hospital, from Camp Jackson, Major STEWART R. ROBERTS, Atlanta.

To Fort Oglethorpe, for duty, from Fort Oglethorpe, Lieut. GORDON BURNS, Douglas. For instruction, from Camp Lee, Lieut. LUCIUS F. WRIGHT, Atlanta; from Newport News, Lieut. WESLEY C. THOMAS, Macon.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps from Fort Oglethorpe, Lieuts. CARLTON J. WELLBORN, Blairsville; WALTER K. STEWART, Sylvester.

To New York City, neurosurgical school, Neurological Institute, for instruction, and on completion to Hoboken, N. J. for temporary duty, Capt. CHARLES M. REMSEN, Atlanta.

Idaho

To Camp Lewis, American Lake, Wash., base hospital, Lieuts. RAYMOND D. MACRAE, St. Mary's; JAMES MacP. McCOLL, Troy.

To Fort Riley for instruction, Lieut. VENANDO G. LOGAN, Rockland.

To Rockefeller Institute for instruction, and on completion to Camp *Doniphan*, Fort Sill, Okla., base hospital, from Fort Riley, Lieut. CLAUDE W. WILLIAMS, Taclide.

Illinois

To Army Medical School for instruction, Lieuts. ALFRED S. BAILEY, RUSSELL D. ROBINSON, Chicago; JOHN J. HOPKINS, Hindsboro, EDGAR E. POOS, Okawville.

To Boston, Mass., General Hospital, for instruction in urology and dermatology, Lieut. HERBERT B. HENKEL, Springfield.

To Brooklyn, N. Y., base hospital, Lieut. ARTHUR SPRENGER, Peoria; from Fort Riley, Lieut. EDWARD F. FOX, Chicago.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieuts. ERIC BARTHOLOMEW, WILLIAM J. QUIGLEY, GEORGE W. SCUPHAM, Chicago; from Camp Bowie, Lieut. JESSE F. BOONE, Chicago.

To Camp Cody, Deming, N. M., for duty, from Kelly Field, Capt. ROMNEY M. RITCHEY, Elgin; from Camp Cody, Lieut. WILLIAM P. DAVIDSON, Sullivan.

To Camp Custer, Battle Creek, Mich., base hospital, Lieuts. ELMER O. DAHL, ARTHUR M. EVANS, JOHN M. MITCHELL, FRANK M. WELDY, Chicago.

To Camp Fremont, Palo Alto, Calif., base hospital, from Fort Riley, Lieut. FRANK J. SCHICK, Chicago.

To Camp Grant, Rockford, Ill., base hospital, Capt. FRANCIS LANE, Chicago. Lieut. SAMUEL G. WINTER, Galesburg; from Fort Riley, Lieut. LEON NEWMAN, Chicago.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Riley, Lieut. WALTER S. MIX, Beardstown.

To Camp Kearny, Linda Vista, Calif., base hospital, from Jefferson Barracks, Capt. FRANK A. PALMER, Morris.

To Camp Lee, Petersburg, Va., base hospital, Lieuts. JOHN FAVILL, WILLIAM A. McQUIRE, CHARLES R. WILEY, Chicago.

To Camp Logan, Houston, Texas, as division psychiatrist, from San Antonio, Capt. THOMAS F. NEIL, East Moline.

To Camp MacArthur, Waco, Texas, base hospital, Lieuts. BERNARD BENKENDORF, CLIFFORD E. BERGIN, HENRY G. LAMPE, THOMAS P. O'CONNOR, PHILIP ROSENBLUM, Chicago; LESLIE D. DARNER, Granite City.

To Camp McClellan, Anniston, Ala., base hospital, Capt. WILLIAM T. DOWDALL, East St. Louis; Lieut. ADELBERT M. MOODY, Chicago.

To Chicago, Ill., for duty and on completion to Camp Custer, Battle Creek, Mich., base hospital, from Camp Zachary Taylor, Lieut. LAURENCE H. MAYERS, Chicago. On completion *to Camp Dodge*, Des Moines, Iowa, base hospital, Lieut. ROBERT E. FLANNERY, Chicago.

To Corpus Christi, Texas, convalescent hospital, Lieut. THOMAS G. ALLEN, Chicago. For duty, from Fort Riley, Lieut. ARTHUR W. DOWNES, Chicago.

To Danville, N. Y., for duty, Lieuts. MAURICE J. RABINS, Chicago; JOSEPH M. KNOCHEL, Lincoln.

To Fort Adams, R. I., for duty, from Fort Riley, Lieut. FRANK KADLEC, Chicago.

To Fort McPherson, Ga., base hospital, from Fort Oglethorpe, Lieut. LEON W. KELSO, Poxton.

To Fort Oglethorpe for instruction, Capts. HENRY W. LANG, Chicago; CHARLES E. SCHULTZ, Shirley; from Camp Zachary Taylor, Capt. ALBERT A. ANKENBRANDT, Mt. Carmel. For instruction, Lieuts. JOHN D. HAWKS, Cambridge; JOSEPH G. BERKOWITZ, LLOYD B. CLINTON, ARTHUR C. CONRAD, FRANK C. FARMER, NELSON H. LOWRY, Jr., JOHN J. McDERMOTT, HARRY H. PETERSON, CHARLES F. PHIPPS, Chicago; GEO. E. LYON, Decatur; CLARENCE W. FLINT, Elgin; CALVIN C. MONTGOMERY, Lincoln; JULIAN J. GOLEMBIOWSKI, Waukegan.

To Fort Riley for duty, Capt. DAVID H. KELLER, Chicago. For instruction, Lieuts. JESSE C. BAILIFF, HARRY H. BOLTON, Jr., SIDNEY B. CONGER, ARTHUR H. HAUBER, JOSEPH A. JOHNSTON, IGNATIUS W. MATUSKA, PAUL H. ROWE, HENRY O. WERNICKE, JACOB W. WINE, Chicago; HUGH I. COAN, Metcalf.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieuts. WILLIS I. SILVERSTEIN, Chicago; HUGH Q. ALLISON, Elery.

To Hoboken, N. J., for duty, from Army Medical School, Lieut. BEVERIDGE H. MOORE, Chicago.

To Morrison, Va., Aviation Section Signal Corps, for duty, Lieut. CHARLES H. REINHARDT, Chicago.

To Newport News, Va., for temporary duty, from Fort Riley, Lieut. BERTON W. HOLE, Ashland.

To Philadelphia, for duty, from Fort Oglethorpe, Lieut. HARRY J. FORTIN, Chicago.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Dodge*, Des Moines, Iowa, base hospital, Capt. GEORGE H. MILLER, Chicago.

To Rockefeller Institute, for instruction, and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, from Williamsbridge, Lieut. ROSS W. GRISWOLD, Litchfield. On completion *to Camp Hancock*, Augusta, Ga., base hospital, from Fort Riley, Lieut. HARRY P. REUSS, Granite City. For instruction in laboratory work, Lieut. CHARLES POTT ECK, Chicago.

To San Juan, Porto Rico, base hospital, from Fort Riley, Lieut. CHARLES W. MATLOCK, Chicago.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieut. FRANK D. WILSON, Armour.

To Williamsbridge, N. Y., for duty, Lieuts. FRANK S. DICOSOLA, TIMOTHY S. HUGGARD, Chicago; from Rockefeller Institute, Lieut. PIERRE A. STEELE, Chicago.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. BERTON W. HOLE, Ashland.

Resignation of Lieut. SAMUEL I. TAUB, Chicago, is accepted.

Indiana

To Army Medical School for instruction, Lieut. EDWARD S. JOHNSTON, Star City.

To Camp Devens, Ayer, Mass., base hospital, Lieut. THOMAS P. GOVAN, Richmond.

To Camp Fremont, Palo Alto, Calif., for duty, from Fort Winfield Scott, Capt. HOMER H. TALLMAN, Culver. Base Hospital, from Fort Riley, Lieut. CHARLES E. PETERS, National Military Home.

To Camp Pike, Little Rock, Ark., for duty, from Camp Pike, Lieut. JOSEPH A. GRAHAM, Hammond.

To Camp Sevier, Greenville, S. C., base hospital, Lieut. GEORGE H. PARMENTER, Stewartville.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieuts. THEODORE F. SEYMOUR; Mishawaka, EARL E. JOHNSON, West Lebanon.

To Camp Travis, Fort Sam Houston, Texas, as assistant to the camp surgeon, from Fort Riley, Major EUGENE BUEHLER, Indianapolis.

To Camp Upton, Long Island, N. Y., for duty, from Camp Upton, Lieut. EARL L. WAITE, Rochester.

To Camp Zachary Taylor, Louisville, Ky., for duty, from duty as a contract surgeon at Camp Zachary Taylor, Lieut. STEPHEN C. MARKLEY, Richmond.

To Fort Ethan Allen Vt., for duty, from Fort Oglethorpe, Lieut. ELBERT E. FREEMAN, Greentown.

To Fort McPherson, Ga., for duty, Lieut. HERBERT T. GARRISON, Gary.

To Fort Oglethorpe for instruction, Capts. BUDD VAN-SWERINGEN, Fort Wayne; ORLOW C. SNYDER, Rockport; Lieuts. ARCHIE V. HINES, Auburn; EDWIN G. NELSON, La Porte; SAMUEL D. CLAYTON, Maxwell; from Camp Lee, Lieut. ELBERT BAKER, Rockville.

To Rockefeller Institute for instruction in laboratory work, and on completion to Army Medical School for duty, Capt. BONNELLE W. RHAMY, Fort Wayne.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Capt. CHARLES N. HOWARD, Warsaw.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. FREEMAN R. BANNON, Kokomo.

Iowa

To Army Medical School for instruction, Lieut. ELLIOTT C. COBB, Sioux City.

To Camp Cody, Deming, N. M., for duty, from Camp Cody, Lieut. GEORGE J. WENZLICK, Iowa City.

To Camp MacArthur, Waco, Texas, base hospital, Capt. THOMAS M. HEARD, Sioux City.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. MILTON D. JEWELL, Decorah.

To Camp Upton, Long Island, N. Y., for duty, from Camp Upton, Lieut. WILLIAM HARRIS, Moravia.

To Chicago, Ill., Northwestern Dental School, for instruction, Capt. CALVIN W. HARNED, Des Moines.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. ARTHUR DRUET, Larchwood.

To Fort Clark, Texas, for duty, from Fort Riley, Lieut. ABRAHAM G. FLEISCHMAN, Des Moines.

To Fort Riley for instruction, Capts. ALBIN B. PHILLIPS, Clear Lake; GRANT AUGUSTINE, Minden; Lieuts. GEORGE F. PUFFETT, Ames; DON HAMILTON NEWLAND, Belle Plaine; DAN L. MAHONEY, Dubuque; KINSLEY RENSHAW, McGregor; LOUIS E. ESLICK, Rockwell City. For duty, from Fort Riley, Lieut. HARRY J. JONES, North English.

To Newport News, Va., for temporary duty, from Fort Riley, Lieut. EDWIN E. WUTTKE, Sumner.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Dodge*, Des Moines, Iowa, base hospital, Capt. JEFFERSON D. BLYTHING, Bettendorf.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieut. LEOMAN D. HUFF, Lenox.

Honorably discharged, Lieuts. FRANK L. GRIFFIN, Baldwin; WILLIAM E. BROWN, Cedar Rapids.

Kansas

To Camp Upton, Long Island, N. Y., base hospital, Capt. FRANKLIN T. JOHNSON, Jr., Elindale.

To Denver, Colo., for duty, and on completion to Deming, N. M., base hospital, from Fort Riley, Lieut. WILSON K. HOBART, Topeka.

To Fort Clark, Texas, for duty, from Fort Riley, Lieut. EUGENE M. ADKINS, Galatia.

To Fort McPherson, Ga., for duty, Lieut. JOHN G. MISSILDINE, Parsons.

To Fort Riley for instruction, Lieuts. ROBERT G. KLEIN, Cimmarron; HARRY H. BROOKHART, Columbus; EARL V. ADAMS, Ingalls.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Dodge*, Des Moines, Iowa, base hospital, Lieut. MILTON B. MILLER, Topeka.

To Waco, Texas, Signal Corps, Aviation Camp, from Fort Riley, Lieut. GEORGE W. B. BEVERLEY, Alma.

Honorably discharged, Lieut. FRANK G. ELLIS, Frederick.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. WINSTON G. RAMSEY, Protection.

Resignation of Lieut. MALCOMB C. NEWMAN, Toronto, is accepted.

Kentucky

To Camp Cody, Deming, N. M., for duty, from Camp Cody, Lieut. GEORGE A. CRAFTON, Fulton.

To Camp Fremont, Palo Alto, Calif., for duty, from Fort MacArthur, Lieut. HUGH F. TAYLOR, Mintonville.

To Camp Meade, Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieut. JAMES M. MORRIS, Chestnutburg.

To Camp Sherman, Chillicothe, Ohio, for duty, Lieut. HIRAM C. BEVINS, Thomas.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. DAVID H. McKINLEY, Winchester.

To Fort Oglethorpe for instruction, Capts. LEW G. WALLACE, Falmouth; JOHN M. ACTON, Lancaster. Lieut. EDGAR HAWKINS, Louisville; from Camp Zachary Taylor, Lieuts. ALBERT STEWART, Frankfort; JAMES A. GRIDER, Smiths Grove; from Camp Wadsworth, Lieut. HOMER L. NICKELL, Salt Lick.

To Fort Riley for instruction, Lieut. KENNETH E. MONTGOMERY, Lexington.

To Garden City, Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. HENRY A. HUGHES, Bond.

To Lexington, Ky., for duty, and on completion *to Camp Zachary Taylor*, Louisville, Ky., base hospital, Capt. VIRGIL E. SIMPSON, Louisville.

To New York City for instruction, and on completion *to Fort McPherson, Ga.*, for temporary duty, Capt. JOHN W. PRICE, Jr., Louisville.

Honorably discharged, Lieut. HARVEY L. BIGGS, Jackson.

Louisiana

To Camp Cody, Deming, N. M., for duty, from Kelly Field, Major ROY McL. VAN WART, New Orleans.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from duty as contract surgeon at New Orleans, Major EDMUND MOSS, New Orleans.

To Fort Oglethorpe for instruction, Lieuts. PRESSLY E. WERLEIN, New Orleans; GEORGE C. McKELLAR, Plain Dealing; from Camp Beauregard, Lieut. WALTER H. REILLEY, New Orleans; from Oklahoma City, Lieuts. THOMAS B. CRACROFT, Kelly; HENRY B. BURDESHAW, FRANK CHETTA, New Orleans.

To San Juan, Porto Rico, base hospital, from Camp Sevier, Capt. CHRISTOPHER L. MENGIS, Norwood.

Maine

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Major WILLIAM L. COUSINS, Portland.

To Garden City, Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. JOSEPH E. J. PELLETIER, Lewiston.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Capt. GUSTAV A. PUDOR, Portland.

Maryland

To Army Medical School for instruction, Lieut. GEORGE B. CRIST, Frederick.

To Camp Meade, Annapolis Junction, Md., base hospital, Majors PAGE EDMUNDS, ARCHIBALD C. HARRISON, Baltimore. For duty, Capt. WILLIAM K. WHITE, Baltimore.

To Camp Upton, Long Island, N. Y., for duty, from Camp Upton, Lieut. JAMES E. GUDD, Baltimore.

To Fort Oglethorpe for duty, from Fort Oglethorpe, Lieut. ALEXANDER M. EVANS, Baltimore. For instruction, Lieut. FRANK P. NICHOLSON, Baltimore; from Camp Lee, Lieut. LOUIS L. JACOBS, Baltimore; from Camp Meade, Lieut. ALBERT SHELLEY, Baltimore.

Massachusetts

To Army Medical School for orthopedic instruction, and on completion *to his proper station*, from Harvard Medical School, Major ROBERT W. LOVETT, Boston. For instruction, Lieuts. STANLEY H. OSBORN, Cambridge; ERNEST E. SMITH, Webster.

To Boston, Mass., base hospital, and on completion *to Camp Dix*, Wrightstown, N. J., from Fort Oglethorpe, Capt. WESLEY T. LEE, Boston. For duty, and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, Capt. RALPH C. WIGGIN, Cambridge. Massachusetts General Hospital, for instruction in urology and dermatology, from Camp Devens, Capt. CORNELIUS I. McGILLICUDDY, Boston; from Fort Oglethorpe, Lieut. WILLIAM K. TURNER, New Bedford. For duty, and on completion *to Camp Devens*, Ayer, Mass., base hospital, Lieut. CARL T. HARRIS, Boston.

To Camp Devens, Ayer, Mass., base hospital, from Camp Devens, Lieut. JACOB GONNERT, New Bedford.

To Camp Doniphan, Fort Sill, Okla., as sanitary inspector, from Camp Greene, Major WILLIAM J. McDONALD, Brookline. To examine the command for mental and nervous diseases, from Camp Beauregard, Lieut. FRANCIS S. GALDICOTT, Billerica.

To Camp Sevier, Greenville, S. C.; *Camp Wadsworth*, Spartanburg, S. C.; *Camp Jackson*, Columbia, S. C., base hospitals, and on completion *to his proper station*, Camp Wheeler, Major FRED B. LUND, Boston.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Camp Travis, Lieut. GEORGE A. MACIVER, Boston.

To Camp Wadsworth, Spartanburg, S. C.; *Camp Jackson*, Columbia, S. C.; *Camp Lee*, Petersburg, Va., base hospitals, and on completion *to his proper station*, from Camp Greene, Major FRANCIS W. PALFREY, Boston.

To Camp Wheeler, Macon, Ga., base hospital, from Fort Oglethorpe, Capt. JOHN A. McLEAN, West Somerville; Lieut. PEIRCE H. LEAVITT, Cambridge. Base hospital, Lieut. ALLEN T. MOULTON, Roxbury.

To Cape May, N. J., for temporary duty, Lieut. HARRY C. SOLOMON, Boston.

To Fort Ethan Allen, Vt., for duty, from Fort Oglethorpe, Lieut. ROBERT S. FLETCHER, Oxford.

To Fort McPherson, Ga., for duty, from Fort Oglethorpe, Lieut. EARL H. HUSSEY, Fall River.

To Fort Oglethorpe for instruction, Lieuts. ROBERT J. COOK, Boston; SAMUEL E. CHALFEN, Cambridge; THOMAS B. RAFFERTY, Lynn.

To Fort Rodman, Mass., for duty, from Fort Adams, Lieut. VICTOR S. MERRITT, Springfield.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. JOHN F. MARTIN, Boston.

To Hoboken, N. J., for duty, Capt. ORVILLE R. CHADWELL, Jamaica Plains; from duty as a private at Camp Devens, Lieut. ANTHONY J. RODERICK, New Bedford.

To New York, Bellevue Hospital, for instruction and on completion *to Camp Devens*, Ayer, Mass., base hospital, Lieut. EDWIN A. MESERVE, Boston. Neurosurgical school, Neurological Institute, for instruction and on completion *to Camp Wheeler*, Macon, Ga., base hospital, Lieut. DONALD MUNRO, Milton.

To Rockefeller Institute for instruction in laboratory work and on completion *to Army Medical School*, for duty, Capt. GEORGE G. PARLOW, Fall River; Lieut. FRANK B. BERRY, Cambridge. For instruction in the serum therapy of pneumonia, Lieut. ARTHUR B. LYON, Boston.

To San Juan, Porto Rico, base hospital, Lieut. STEPHEN J. DALTON, Marlboro.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Major WALTER B. LANCASTER, Boston.

Michigan

To Army Medical School for instruction, Lieut. EMMETT C. TROXELL, Detroit.

To Boston, Mass., General Hospital, for instruction in urology and dermatology, Lieut. MAXWELL LANDO, Detroit.

To Brooklyn, N. Y., base hospital, from Newport News, Lieut. ROBERT A. DAVIS, Clinton.

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. CLARENCE A. CHRISTENSEN, Detroit; from Fort Oglethorpe, Lieut. ERNEST C. SCHULTZ, Detroit.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieuts. CLAYTON A. WHITE, Burnips; WILLIAM G. SCHLEGELMILCH, Detroit; COLIN C. VARDON, East Jordan.

To Camp Jackson, Columbia, S. C., base hospital, from Fort McHenry, Lieut. EDWIN M. CHAUNCEY, Albion.

To Cape May, N. J., for duty, Capt. RAY CONNOR, Detroit.

To Columbus Barracks, Ohio, for duty, Capt. BENJAMIN E. A. CRANE, Saginaw; Lieut. EDWARD J. AGNELLY, Detroit.

To Corpus Christi for duty, from Camp Sherman, Capt. BERTRAM H. OLMSTEAD, Calumet.

To Fort Oglethorpe for instruction, Lieut. ARTHUR R. MUSSELL, Clare.

To Fort Riley for instruction, Capt. WILLIAM S. BROWNELL, Detroit.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Oglethorpe, Lieut. WILBUR F. SHIRKEY, Jr., Detroit.

To Hoboken, N. J., for duty, from Camp Custer, Lieut. ROSCOE C. MAIN, Marquette.

To Pittsburgh, Pa., for instruction, and on completion *to their proper stations*, from Fort Oglethorpe, Capt. GEORGE S. FODEN, Highland; Lieut. LUCIUS M. PATTERSON, Detroit.

To Rockefeller Institute for instruction, and on completion *to Camp MacArthur*, Waco, Texas, base hospital, from Fort Riley, Lieut. HAROLD B. MARKHAM, Marquette.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieuts. HAROLD F. CLOSZ, CLYDE R. VAN GUNDY, Detroit; NELSON McLAUGHLIN, Lake Odessa; EARL V. McCOMB, Menominee.

To Williamsbridge, N. Y., for duty, Lieuts. AARON L. CHAPMAN, Detroit; CUTHBERT E. DEMAY, FRED L. RHODES, Jackson.

To the inactive list, from Camp Doniphan, Lieut. DAMON O. WALTHALL, Ann Arbor.

Honorably discharged on account of physical disability existig prior to his entrance into the service, Lieut. OSCAR P. GEIB, Hubbardson.

Minnesota

To Ann Arbor, Mich., psychopathic hospital, for intensive training, Lieut. FRANK W. WHITMORE, St. Paul.

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. ROBERT I. BARICKMAN, Lewisville.

To Camp Dodge, Des Moines, Iowa, base hospital, Major FRANK E. BURCH, St. Paul.

To Camp Doniphan, Fort Sill, Okla., to examine the command for mental and nervous diseases, from Camp Beauregard, Lieut. EDWARD J. ENGBERG, St. Paul.

To Camp Lee, Petersburg, Va., base hospital, from Boston, Lieut. CHARLES K. HOLMES, St. Paul.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. CHARLES H. GHENT, St. Paul.

To Cape May, N. J., for temporary duty, from Walter Reed General Hospital, Lieut. ARTHUR T. HENRICI, Minneapolis.

To Chicago, Ill., Northwestern University Dental School, for instruction, Capt. WARNER M. KARSHNER, Rochester.

To Fort Leavenworth, Kans., Department Laboratory, Capt. WINFIELD S. NICKERSON, Long Lake.

To Fort McPherson, Ga., base hospital, Lieut. OLIVER C. NELSON, Rochester.

To Fort Oglethorpe for instruction, from Oklahoma City, Capt. ROBERT H. MONOHAN, International Falls; Lieut. WILLIAM A. LEE, Underwood.

To Fort Riley for instruction, Capt. HARRY H. SELLERS, Minneapolis; Lieuts. LINWOOD M. KEENE, Alexandria; BERNT ODEGNARD, Emmons; JOHN G. GOGGIN, Stewartsville.

To Hoboken, N. J., for duty, from Camp Upton, Capt. GORDON G. ST. CLAIR, Section Thirty.

To New York City for instruction in orthopedic surgery, from Allentown, Lieut. PAUL W. GIESSLER, Minneapolis.

To Pittsburgh, Pa., for instruction, and on completion *to his proper station*, from Fort Riley, Lieut. FRANK E. ELLISON, Monticello.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School*, Lieuts. HERMAN W. HUNDLING, RALPH R. SIMMONS, Rochester.

To San Francisco, Calif., for instruction, and on completion *to his proper station*, from Camp Kearny, Capt. RALPH J. SEWALL, Minneapolis.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieut. PARKER L. BERGE, Brainerd.

To Washington, D. C., for duty, from Fort Oglethorpe, Major CHARLES H. MAYO, Rochester.

Mississippi

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. ROBERT H. PEGRAM, Potts Camp.

To Camp Devens, Ayer, Mass., as a member of the tuberculosis examining board, from Camp Devens, Capt. PARKER M. CORT, Springfield.

To Camp Sheridan, Montgomery, Ala., *Camp Wheeler,* Macon, Ga., *Camp Gordon,* Atlanta, Ga., *Camp McClellan,* Anniston, Ala., base hospitals, and on completion *to his proper station* from Camp Shelby, Major WALTER W. CRADFORD, Hattiesburg.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieuts. ABNER J. BARNETT, Carthage; VERSILE E. GATES, Raber.

To Fort Oglethorpe for instruction, Lieuts. HENRY G. KALDROP, Bethany; THOMAS A. STRAIN, Meridian; CASSIUS D. ALEXANDER, Vaiden; from Camp Beauregard, Lieut. HUGH L. McCALIP, Rockport; from Camp McClellan, Lieut. HILTON R. CARR, Water Valley.

To Garden City, Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. GRAHAM W. DIGGS, Black Hawk.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. JOHN H. KELLIS, Shugualak.

To their homes and honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. JAMES Q. FOUNTAIN, Bay St. Louis; ARCHIBALD W. McNEAL, Ruleville.

Resignation of Lieut. JAY R. MANNING, Corinth, is accepted.

Missouri

To Ann Arbor, Mich., psychopathic hospital, for intensive training, Capt. WILLIAM T. PATTERSON, Shelbina.

To Army Medical School for instruction, from Washington, D. C., Capt. GREENE D. McCALL, Fulton.

To Austin, Texas, for duty, from Fort Riley, Lieut. CHARLES MOORE, Advance.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. VINCENT F. TOWNSEND, St. Louis.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieut. GROVER C. JOHNSON, Beele.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Riley, Lieut. HERBERT H. PRICE, St. Louis.

To Camp MacArthur, Waco, Texas, base hospital, Lieuts. MERRILL N. SMITH, Fayette; IRWIN H. SCHMIDT, St. Louis.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. WALTER J. JARACZ, St. Louis.

To Camp Sherman, Chillicothe, Ohio, Lieut. ORRILL LEG. SUGGETT, St. Louis.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieuts. MEYER S. FLEISHER, JOHN R. VAUGHAN, St. Louis.

To Corpus Christi, Texas, Convalescent Hospital, from Camp Custer, Major WILLIAM J. FRICK, Lancaster. For duty, from Fort Riley, Lieuts. VIRGIL S. DANGERFIELD, Lurray; JAMES T. COOK, WALTER J. MELLIES, St. Louis.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. JOHN H. WHITTAKER, Kansas City.

To Fort Ethan Allen, Vt., for duty, from Fort Riley, Lieut. LUX H. BOCK, St. Louis.

To Fort McPherson, Ga., base hospital, Capt. GEORGE H. HOXIE, Kansas City; Lieuts. MORRIS H. CLARK, CHARLES C. DENNIE, Kansas City; HENRY ST. C. O'DONNELL, St. Louis.

To Fort Riley, base hospital, Capt. JAMES G. CALHOUN, St. Louis. For instruction, Capt. THOMAS C. RICHARDS, Fayette; Lieuts. GOUGH H. TARR, Charleston; BID C. COLE, De Witt; EUGENE A. MILLER, HENRY O. WITTEN, St. Joseph; JAMES C. LANDREE, St. Louis.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. HARRY S. CRAWFORD, Harrisonville.

To Jefferson Barracks, Mo., to conduct a nutritional survey, from Belleville, Ill., Capt. DON R. JOSEPH, St. Louis.

To Lake Charles, La., Signal Corps Aviation School, Gerstner Field, from Fort Riley, Capt. NORVELL W. SHARPE, St. Louis.

To Newport News, Va., for duty, Lieuts. JONAS C. KOPELOWITZ, DANIEL P. WRIGHT, St. Louis; from Fort Riley, Lieut. FLOYD H. MAPLES, St. Louis.

To Pittsburgh, Pa., for instruction, and on completion *to his proper station,* from Fort Riley, Lieut. CLAY M. MULLINAX, Princeton.

To Rockefeller Institute for instruction, and on completion *to Camp Wadsworth,* Spartanburg, S. C., base hospital, from Fort Riley, Lieut. MADISON J. PULLIAM, St. Louis.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. CLYDE M. VALSLEY, Joplin.

Montana

To Camp Lewis, American Lake, Wash., base hospital, Lieut. FRANK W. COTTON, Lewistown.

To Corpus Christi, Texas, for duty, from Fort Riley, Lieuts. WILLIAM D. MADDEN, Great Falls; WINFIELD S. FAULDS, Roy.

To Fort Clark, Texas, for duty, from Fort Riley, Lieut. CLAUDE C. TUCKER, Scobey.

To Fort Riley for instruction, Lieut. EUGENE F. BRINDJONC, Butte.

To Rochester, Minn., Mayo Clinic, for instruction and on completion *to Camp Grant,* Rockford, Ill., base hospital, Lieut. CARL A. JOHNSON, Anaconda.

Nebraska

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieut. CHARLES C. WALLINGSFORD, Ogallala.

To Camp Grant, Rockford, Ill., base hospital, from Fort Riley, Capt. JOHN BUIS, Pender.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. WILLIAM EDMONDS, Nebraska City.

To Fort Leavenworth, Kan., Department Laboratory, Lieut. CLARK D. SPIVEY, Lincoln.

To Fort Omaha, Neb., for duty, Lieut. LEONARD RIGGERT, Omaha.

To Fort Riley for instruction, Major CHARLES A. HULL, Capts. JOHN R. NILSSON, NORMAN C. PRINCE, Omaha. Base hospital, Capt. JAMES C. WADDELL, Pawnee City. For instruction, Lieuts. JOHN H. REGAN, Grand Island; MILES J. BREUER, Lincoln; ARTHUR J. GRIOT, Long Pine; JOHN L. LINN, Omaha.

To Jefferson Barracks, Mo., for duty, from Fort Riley, Lieut. HANS C. PEDERSEN, Dannebrog.

To New York City, Neurological Institute, for intensive training in nervous diseases, Capt. GUSTAVE W. DISHONG, Omaha.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* for duty, Lieut. SANFORD R. GIFFORD, Omaha.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Capt. GLYNDON A. YOUNG, Ponca.

The resignation of Lieut. HERMAN A. GERBIG, Friend, is accepted.

New Hampshire

To Brooklyn, N. Y., base hospital, Lieut. DANIEL J. SULLIVAN, Manchester.

To Hoboken, N. J., for duty, Lieut. GOODWIN A. JOHNSON, Concord.

New Jersey

To Army Medical School for instruction, Lieuts. SYDNEY CHAYES, Bayonne; JOHN H. E. FUST, Corney's Point; GERALD L. HIGGINS, Jersey City; WILLIAM W. SISSERSON, Westfield.

To Boston, Mass., General Hospital, for instruction in urology and dermatology, Capt. CHARLES R. MITCHELL, Paterson.

To Camp Custer, Battle Creek, Mich., base hospital, Lieuts. IRWIN MARKOWITZ, ABRAHAM J. NEWMAN, Jersey City.

To Camp Devens, Ayer, Mass., base hospital, Lieut. EDMUND J. DALY, Bayonne.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Fort Riley, Lieut. BENNETTE W. HOAGLAND, Woodbridge.

To Camp Lee, Petersburg, Va., base hospital, from Camp Lee, Lieut. HOWARD S. SMITH, Newark.

To Camp Sheridan, Montgomery, Ala., *Camp McClellan,* Anniston, Ala., *Camp Pike,* Little Rock, Ark., for duty and on completion *to his proper station,* Major GEORGE H. LATHROPE, Morristown.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. FRANCIS W. PIKE, Hoboken.

To Danville, N. Y., for duty, Lieut. FRANK J. VAN NOORT, Paterson.

To Fort Monroe, Va., for duty, from Fort Oglethorpe, Lieut. JOHN A. BOTTI, Jersey City.

To Fort Oglethorpe for instruction, Lieut. BENJAMIN J. SILVERSTEIN, Newark.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Army Medical School, Lieut. JOHN F. WEBER, South Amboy.

To Newport News, Va., for temporary duty, from Fort Oglethorpe, Capt. LEONARD F. HATCH, Vineland.

To New York City, Bellevue Hospital, for instruction and on completion *to Camp Upton,* Long Island, N. Y., base hospital, Lieut. BERNARD A. O'CONNOR, Harrison.

To Rockefeller Institute for instruction and on completion *to Camp Dix,* Wrightstown, N. J., base hospital, from Fort Oglethorpe, Lieut. BROOKE DODSON, Penns Grove.

To San Juan, Porto Rico, base hospital, from Camp Wheeler, Capt. JESSE D. LIPPINCOTT, Newark.

To his home and honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. WILLIAM L. BULLOCK, Atlantic City.

New Mexico

To Camp Cody, Deming, N. M., for duty, Capt. SILVINS S. CRAIG, Santa Rosa.

New York

To Allentown, Pa., base hospital, from Fort McHenry, Capt. MORRIS J. KARPAS, Lieut. ROYALL G. CANNADY, New York City.

To Army Medical School for instruction, Lieuts. JAMES A. BILELLO, WILLIAM H. COOK, JOSEPH G. STRICKLER, Brooklyn; SAMUEL BARONE, RAYMOND HENSEL, PORTER A. STEELE, Buffalo; EDMUND H. PARIZOT, Cochecton; J. DE RAISMES COMBES, Elmhurst; ROY J. JUHRE, Fredonia; JOHN F. HEALEY, Hornell; FRANCIS G. RILEY, Jamaica, L. I.; MAURICE B. BENDER, LEO. MICHAELS, New York City; LEON C. COTE, Warrensburg.

To Brooklyn, N. Y., base hospital, Capts. SAMUEL F. FISHER, JAMES T. FLANAGAN, Brooklyn; from Camp Beauregard, Capt MORRIS B. BEECROFT, Brooklyn; from Kelly Field, Capt. JOHN F. W. MEAGHER, Brooklyn. Base hospital, Lieuts. RALPH H. GARLICK, CHARLES E. RYND, Brooklyn; from Cornell Medical College, Lieut. RICHARD A. RENDRICH, Brooklyn; from Camp Upton, Lieuts. GEORGE C. McELVARE, RICHARD F. SEIDENSTICKER, Brooklyn; from Fort Jay, Lieut. ROBERT T. IRVINE, Ossining; from Fort Oglethorpe, ARTHUR J. O'CONNOR, Brooklyn.

To Camp Cody, Deming, N. M., to examine the command for mental and nervous diseases, Lieuts. ABRAHAM M. RABINER, Albany; CLARENCE J. D'ALTON, New York City.

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. MORRIS JACOFF, Brooklyn.

To Camp Fremont, Palo Alto, Calif., for duty, from Presidio, Lieut. EDWIN M. JOHNSON, New York City.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Capt. THOMAS A. ROGERS, Plattsburg; from Camp Greene, Lieut. ARTHUR F. KRAETZER, New York.

To Camp Hancock, Augusta, Ga., base hospital, Lieuts. AMOS J. MINKEL, Hamburg; HOWARD D. MacFARLAND, Westernville.

To Camp Jackson, Columbia, S. C., for duty, from Camp Jackson, Major WALTER BENSEL, New York.

To Camp Lee, Petersburg, Va., base hospital, Capt. WILLIS S. COBB, Corning; Lieut. ANTONIO L. BARONE, Buffalo.

To Camp Meade, Annapolis Junction, Md., base hospital, Lieut. ARTHUR L. CHAMBERS, New York City.

To Camp Merritt, N. J., Camp Dix, Wrightstown, N. J., *U. S. Filling Station,* Edgewood, Md., *Camp Meade,* Annapolis Junction, Md., *Fort Myer, Va., Camp Devens,* Ayer, Mass., *Camp Upton,* Long Island, N. Y., for inspection, and on completion *to his proper station,* Capt. BRAINERD H. WHITBECK, New York.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort Oglethorpe, Lieut. ALLEN E. VAN NOSS, New York City.

To Camp Sheridan, Montgomery, Ala., base hospital, Lieut. CHARLES LUTZ, New York City.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. WILLIAM ZUCKERMAN, Brooklyn.

To Camp Stuart, Newport News, Va., for duty, from Fort Ethan Allen, Major ARTHUR S. MOORE, Middletown; from Camp Greene, Capt. EMIL ALTMAN, New York.

To Camp Travis, Fort Sam Houston, Texas, to examine the command for mental and nervous diseases, from Kelly Field, Lieut. AUGUSTUS B. DYKMAN, Riverdale.

To Camp Upton, Long Island, N. Y., *Camp Devens,* Ayer, Mass., *Camp Meade,* Annapolis Junction, Md., base hospitals, and on completion *to his proper station,* from Camp Dix, Capt. HOWARD BOVAIRD, New York. *To Camp Upton,* base hospital, from Camp Upton, Capt WALTER H. VOSBURG, Dunkirk. For duty, from Fort Oglethorpe, Capt. JAMES H. McCORT, Sag Harbor; from Camp Upton, Lieuts.

JOSEPH L. BEHAN, SOLOMON J. SAMBUR, Brooklyn. Base hospital, Lieuts. CESARE MONDINI, Brooklyn, LOUIS L. GOLDBLATT, New York City.

To Curtis Bay, Md., for duty, from Fort Oglethorpe, Lieut. GUNNI J. BUSCK, Westfield.

To Fort McPherson, Ga., for duty, Lieut. SAMUEL ZUCKERMANN, New York City.

To Fort Oglethorpe for instruction, Capts. CHARLES H. GALLAGHER, Ithaca; JAMES P. FISKE, New York City; MYRON B. PALMER, Rochester; from Camp Lee, GEORGE D. HAMLEN, New York. For instruction, Lieuts. RAYMOND F. A. KIRCHER, Albany; JAMES T. BOYD, CLARENCE F. FOWLER, JAMES C. SHARP, Brooklyn; BROOKS W. McCUEN, Cohoes; WILLIAM B. GIBB, Haverstraw; THOMAS A. McGRATH, Hoosick Falls; JACOB BRANOWER, LOUIS CARP, MICHAEL E. CAVALLE, KIRBY DWIGHT, FREDERICK W. HOLCOMB, ANTHONY MANGIARACINA, ABRAHAM B. PENSLER, New York City; LAWRENCE E. COTTER, Poughkeepsie; LOUIS E. McCANNA, White Plains; from Camp Beauregard, Lieut. STANLEY S. INGALLS, Parish; from Camp Gordon, Lieut. ALBERT F. A. BARRY, Stony Point; from Camp Lee, Lieuts. NELSON H. HOLDEN, Brooklyn; FRANCIS ARGUS, Buffalo; SIDNEY TRATTNER, THERON C. WALKER, New York City; from duty as a private at Camp Upton, Lieut. EDGAR B. PROUT, New York City; from Fort McHenry, Lieut. LEO GOTTSCHALK, Bronx; from Fort Oglethorpe, HERBERT ADLER, New York.

To Fort Riley for duty, from Camp Custer, Lieuts. WILLIAM T. SHIELDS, Troy. For instruction, from Camp Dodge, Lieut. RALPH L. DOURMASHKIN, New York City.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Army Medical School, Lieuts. HENRY BOLEY, Brooklyn; LLOYD T. McNULTY, Norwood; PAUL S. PERSONS, Ripley; from Fort Oglethorpe, Lieut. HERMAN MARTINSON, New York City.

To Hoboken, N. J., for duty, Major RAYMOND CLARK, Lieut. JAMES L. COBHAM, Brooklyn; from Camp Upton, Lieut. WILLIAM H. SEWARD, Amsterdam.

To Jefferson Barracks, Mo., to conduct a nutritional survey, from Belleville, Ill., Lieut. ALLEN G. T. HIPPS, Brooklyn.

To Muncy, Pa., and *Clifton Springs, N. Y.*, for inspection and on completion *to his proper station*, Major RICHARD H. HUTCHINGS, Ogdensburg.

To Newport News, Va., for duty, Lieut. ARCHIBALD BUCHANAN, Troy.

To New York City as instructor in orthopedic work, from New York City, Capt. BRAINERD H. WHITBECK, New York. For temporary duty, Capt. JOHN F. FRASER, New York City. Neurological Institute, for intensive training, Capt. ARTHUR D. DRYFOOS, New York City; Lieuts. HAROLD R. ROBERT, Dannemora; LEONARD S. NOLAN, Syracuse. Base hospital, Lieut. THOMAS E. LAVELLE, New York City; and on completion *to Fort McHenry, Md.*, for temporary duty, from Hoboken, Lieut. THOMAS F. DAVIES, Floral Park.

To Princeton, N. J., Princeton University, for duty, Lieut. PETER P. McGLADE, New York City.

To Rockefeller Institute for instruction, and on completion *to Camp Lee*, Petersburg, Va., base hospital, Major THOMAS R. SPENCE, Brooklyn. On completion *to Camp Hancock*, Augusta, Ga., base hospital, Major JAMES H. LAWSON, New York. On completion *to his proper station*, from Camp Greene, Capt. CORDEN T. GRAHAM, Rochester. On completion *to Williamsbridge, N. Y.*, for temporary duty, from Fort Oglethorpe, Capt. WILLIAM J. MEYER, White Plains; Lieut. SEYMOUR G. CLARK, Brooklyn; from Fort Riley, Lieut. THEODORE B. REED, New York. For instruction in laboratory work, Lieuts. ADOLPH G. DE SANCTIS, JACQUES S. UHR, New York City. On completion *to Army Medical School* for duty, Lieut. MAXIMILIAN B. HEMSER, New York City.

To San Juan, Porto Rico, base hospital, from Camp Sheridan, Major EDWARD W. PEET, New York; from Fort Oglethorpe, Lieut. ERNEST L. SCHNEFER, Brooklyn.

To University, Va., for duty, and on completion *to Camp Sevier*, Greenville, S. C., base hospital, from Rockefeller Institute, Lieut. HERBERT F. JACKSON, New York.

To Washington, D. C., for duty in the Surgeon General's Office, Major LEWIS A. CONNER, New York City. Government Hospital for the Insane, for intensive training, from Camp Jackson, Capt. GEORGE A. BLAKESLEE, New York.

To Watervliet, N. Y., for duty, from duty as contract surgeon at Watervliet, Capt. FRANCIS J. NOONAN, Troy.

To Williamsbridge, N. Y., for instruction in hospital management, Capt. EDMOND J. BARNES, New York City. For duty, from New York City, Major LEWIS G. COLE, New York City. For duty, Lieuts. FRANK KRUSE, CHARLES C. PANZARELLA, Buffalo; CARL G. SEHWAN, Danville; JACOB SACHA, Rochester.

Honorably discharged on account of physical disability existing prior to entrance into the service, Major ROBERT W. ANDREWS, Poughkeepsie; Capts. GEORGE S. ALLEN, Clyde; LESLIE M. WILKINS, Dexter; Lieuts. CHARLES S. GOODWIN, Bridgeport; LEO. GOTTSCHALK, SAMUEL SWIFT, New York City.

Honorably discharged, Lieuts. PERRY J. MANHEIMS, WILLIAM B. NOYES, New York City.

Resignations of Capt. FLOYD A. BENJAMIN, Cherry Creek, and Lieut. LEANDER P. FERNANDEZ, Yonkers, are accepted.

North Carolina

To Army Medical School for duty, Lieut. JOHN E. WINE, Wilmington. For instruction, Lieut. RICHARD B. DAVIS, Weeksville.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. BURTON B. STURDIVANT, Sunburst.

To Camp Lee, Petersburg, Va., as divisional tuberculosis specialist, from Camp Lee, Lieut. JOHN DONNELLY, Charlotte.

To Camp Pike, Little Rock, Ark.; *Fort Oglethorpe, Ga.; Camp McClellan*, Anniston, Ala.; *Camp Sheridan*, Montgomery, Ala., for duty, and on completion *to his proper station*, Major JOHN T. BURRUS, High Point.

To Camp Upton, Long Island, N. Y., for duty, from Camp Upton, Lieut. L. DOWE FLOYD, Cerro Gordo.

To Fort Caswell, N. C., for duty, Capt. ANDREW H. HARRISS, Wilmington.

To Fort Oglethorpe for instruction, from Camp Greene, Lieut. HARVEY ROBINSON, Reidsville.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. JOHN C. DYE, Statesville.

To San Juan, Porto Rico, base hospital, from Camp Beauregard, Lieut. ANDREW B. HOLMES, Council.

Resignation of Lieut. LEAMAN BAGGETT, Tabor, is accepted.

North Dakota

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieut. DICKENSON C. WHEELOCK, Epping.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. CARL VOSS, Hettinger.

To Fort Leavenworth, Kan., Department Laboratory, Lieut BERNARD D. VERRET, Rolla.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieut. JOSEPH A. SMITH, Noonan.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. WILLIAM L. COWPER, Michigan.

Ohio

To Army Medical School for instruction, Lieuts. ROBERT J. JUDKINS, Barnesville; EDWARD P. NEARY, Cleveland; THOMAS F. HIGGINS, Toledo.

To Brooklyn, N. Y., base hospital, from Camp Upton, Lieut. CARROLL H. SKEEN, Senecaville.

To Camp Beauregard, Alexandria, La., base hospital, from Camp Shelby, Lieut. ZALMON C. SHERWOOD, Geneva.

To Camp Cody, Deming, N. M., for duty, from Kelly Field, Lieut. JAMES A. BELYEA, Toledo.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. ALFRED T. COLE, Cincinnati; from Fort Oglethorpe, Lieut. CHARLES R. DEEDS, Dalton.

To Camp Greene, Charlotte, N. C., base hospital, Capt. HARRY S. HAYES, Whitehouse.

To Camp Lee, Petersburg, Va., base hospital, Lieut. ROBERT A. THORNTON, Columbus.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. LESLIE E. LUEHRS, Cincinnati.

To Camp Sherman, Chillicothe, Ohio, for duty, from Camp Sherman, Capt. ROBERT W. WILLIAMS, Cleveland; Lieut. HENRY M. METCALF, Elyria.

To Camp Taylor, Louisville, Ky., base hospital, Lieut. GEORGE A. GORSUCH, Bowling Green.

To Cincinnati, Ohio, base hospital, and on completion *to Camp Sherman*, Chillicothe, Ohio, for temporary duty, from Camp Zachary Taylor, Lieut. LAUREN N. LINDENBERGER, Cincinnati.

To Columbus Barracks, Ohio, for duty, Lieut. EVERETT T. SKEELS, Akron.

To Edgewood, Md., for duty, Lieut. HAROLD R. NEELAND, Akron.

To Fort Oglethorpe for instruction, Capts. WILLIAM W. McMILLAN, Marietta; DANIEL C. MOOR, Toledo; Lieuts. HERBERT A. RODENBAUGH, Barburton; ALBERT P. HOFMANN, ALEXANDER R. JOHNSTON, Cincinnati; PAUL C. GAUCHAT, JAMES R. MOORE, HERMAN SHUBE, Cleveland; VICTOR B. WELLER, Delaware; ADDISON H. HATTERY, Fostoria; FREDERICK M. HOUGHTALING, Huron; CHARLES R. FISHEL, Thurston; from Camp Wadsworth, Lieut. JOHN H. NORRICK, Frederickstown.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Army Medical School, Lieut. FRANK S. VAN DYKE, Columbus; from Fort Oglethorpe, Lieut. GEORGE W. MANNING, Kelley's Island.

To Philadelphia, Pa., for duty, from Jenkins Arcade, Lieut. GUY H. SWAN, Bellefontaine.

To Rockefeller Institute for instruction, and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, Capt. BENJAMIN F. LEHMAN, Cincinnati. For instruction in laboratory work, and on completion *to Army Medical School* for duty, Lieuts. JAY B. RUDOLPHY, Barbertown; ALBERT F. SNELL, Jr., Cincinnati; MAURICE RICHARDSON, Cleveland.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieuts. EDGAR D. ALLEN, Crooksville; WALTER E. DAPP, Youngstown.

To Washington, D. C., for duty, from Army Medical School, Lieut. CHARLES A. S. WILLIAMS, Marietta.

To their homes and honorably discharged on account of physical disability existing prior to entrance into the service, Capt. ALBERT J. BRAINARD, South Euclid; Lieut. HENRY C. PRILL, Cleveland.

The resignation of Lieut. GEORGE R. WISEMAN, Amherst, is accepted.

Oklahoma

To Camp Bowie, Fort Worth, Texas, for temporary duty, and on completion to Oklahoma City, Lieut. WILLIS E. WEST, Oklahoma City.

To Camp Cody, Deming, N. M., for instruction, Capt. RALPH V. SMITH, Tulsa. For duty, from Camp Cody, Lieut. CHARLES W. ALEXANDER, Temple; from Oklahoma City, Lieut. GARDNER H. APPLEWHITE, Shawnee.

To Camp Pike, Little Rock, Ark., to examine the command for mental and nervous diseases, Lieut. JAMES J. GABLE, Norman.

To Corpus Christi, Texas, as commanding officer, from Camp Sheridan, Major FRED H. CLARK, El Reno.

To Fort Leavenworth, Kan., Department Laboratory, Lieut. BARTON H. WATKINS, Gotobo.

To Fort Oglethorpe for instruction, Lieut. FRANCIS A. DEMAND, Oklahoma City; from Camp Beauregard, Lieut. GEORGE W. TILLY, Kusa; from Oklahoma City, Lieuts. REUBEN M. HARGROVE, Norman; NOVAL W. CAMPBELL, Poteau.

To Fort Riley for instruction, Lieuts. JULIUS W. NIEWEG, Duncan; GEORGIA M. COMBEST, Lamar; ELMER F. GARLINGON, Olustee; from Camp Doniphan, Lieut. R. EARLE SMITH, Gracemont.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieut. WILLIAM B. HARNED, Chattanooga.

The resignation of Lieut. JAMES E. PARRAMORE, Antlers, is accepted.

Oregon

To Camp Fremont, Palo Alto, Calif., for duty from Western Department, Lieut. JAMES A. BEST, Pendleton.

To Camp Lewis, American Lake, Wash., base hospital, Capt. WILLIAM S. KNOX, Lieut. FLOYD B. LAWTON, Portland.

To Fort Riley, base hospital, Lieut. ARTHUR S. ROSENFELD, Portland.

To report by wire to the Commanding General, Western Department, for assignment to duty, Lieuts. GORDON MacCRACKEN, Ashland; WILLIAM E. HEDGES, Juntura.

To San Francisco, Calif., for instruction and on completion *to Camp Kearny,* Linda Vista, Calif., base hospital, Capt. HILLIS H. HATTERY, Pendleton. On completion *to Camp Lewis,* American Lake, Wash., base hospital, Lieut. EDWARD F. ZIEGELMAN, Portland.

Pennsylvania

To Army Medical School for instruction, Lieuts. HAROLD H. LAMB, Braddock; HARRY L. BAKER, Catasauqua; MICHAEL R. LONG, Leetonia; RAY R. HETHERINGTON, JOHN H. McCUTCHEON, Philadelphia; GEORGE W. KRICK, JR., Reading; PHILIP L. COOK, Wyalusing. For orthopedic instruction, Lieut. MAX A. BLUMER, Pittsburgh.

To Boston, Mass., General Hospital, for instruction in urology and dermatology, Lieut. JOHN B. HAINES, Philadelphia.

To Camp American University, Washington, D. C., for duty from Fort Oglethorpe, Lieut. WALLACE R. McCLELLAN, Garrett.

To Camp Cody, Deming, N. M., to examine the command for mental and nervous diseases, Major HORACE PHILLIPS, Philadelphia. For duty, from Kelly Field, Lieut. EMORY L. DRAVO, Warren.

To Camp Doniphan, Fort Sill, Okla., to examine the command for mental and nervous diseases, from Camp Beauregard, Capt. WILLIAM W. RICHARDSON, Mercer.

To Camp Meade, Annapolis Junction, Md., for temporary duty and on completion *to Camp Greene,* Charlotte, N. C., as division psychiatrist, from Camp Wadsworth, Capt. SAMUEL LEOPOLD, Philadelphia. Base hospital, from Camp Meade, Lieut. SYLVIA J. ROBERTS, Etters.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Sevier, Lieut. JOSEPH A. ZOOK, Morgantown.

To Camp Sheridan, Montgomery, Ala., base hospital, Lieut. FRANK L. SHENK, Linglestown.

To Camp Sherman, Chillicothe, Ohio, from Fort Oglethorpe, Lieuts. ISAIAH C. MORGAN, Edwardsville; GEORGE F. BAIER, Philadelphia.

To Camp Upton, Long Island, N. Y., for duty, from Camp Upton, Major HENRY P. BROWN, Philadelphia; Capt. BRANTLY F. PARKER, York.

To Camp Wheeler, Macon, Ga., *Camp Sheridan,* Montgomery, Ala., *Camp McClellan,* Anniston, Ala., and *Fort Oglethorpe,* for duty and on completion *to his proper station,* from Fort McPherson, Major WILLIAM W. BABCOCK, Philadelphia.

To Columbus Barracks, Ohio, for duty, Lieut. ALEXIS D. SMITH, Philadelphia.

To Fort Andrews, Mass., for duty, from Fort Oglethorpe, Lieut. ADAM S. KEPPLE, Hannastown.

To Fort Bayard, N. M., for observation and treatment, Lieut. GEORGE P. PILLING, Philadelphia.

To Fort Ethan Allen, Vt., for duty, from Fort Oglethorpe, Lieut. JAMES R. GEMMILL, Canton.

To Fort McPherson, Ga., for duty, Capt. HARRY C. WEBSTERVELT, Pittsburgh.

To Fort Oglethorpe, for instruction, from Camp Lee, Capt. ELMER G. WEIBEL, Erie; from Camp Meade, Capt. EDWARD McI. HALEY, Blossburg. Base hospital, Lieut. OTHMAR F. BARTHMAIER, Philadelphia. For instruction, Lieuts. THOMAS R. MORGAN, Bellefonte; DON C. FOSSELMAN, Connellsville; WALTER W. SCHMID, Crafton; EDWARD H. McCLISTER, Kittanning; RALPH L. ENGLE, JOSEPH L. MacCABE, CHARLES D. SAUL, THOMAS H. WALKER, Philadelphia; WILLIAM L. BOTKIN, HOWARD S. MYERS, KARL P. WICKERMAN, Pittsburgh; JAMES P. H. RUDDY, Scranton.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Army Medical School, Lieuts. ROBERT E. BARTO, Elizabeth; JAMES C. HAWKINS, McKees Rocks; SYDNEY L. WINGRADE, Philadelphia; ABRAM V. HICKS, JOHN L. STAFFY, Pittsburgh; from Fort Oglethorpe, Lieuts. WILLIAM B. PETERS, JR., Appalachia; ROSS H. JONES, Condersport; URBAN H. REIDT, Jeannette; ALOIS F. SEIFRIS, Mars; HERBERT B. SHEARER, Norristown; VICTOR J. B. FRIES, Philadelphia; CHARLES F. NETZEL, Plymouth; JAMES B. McAVOY, South Bethlehem; JOSEPH L. McGINLEY, Wilkes-Barre.

To Hoboken, N. J., for duty, Lieut. HARRY W. MILLIKEN, Sharon.

To New York City, Neurological Institute, for instruction, from Fort Riley, Lieut. DAVID B. HAWKINS, Philadelphia; for intensive training, Lieut. WALTER R. KRAUSS, Philadelphia.

To Philadelphia, as executive chairman of the Pennsylvania State Committee, Medical Section, Council of National Defense, and on completion *to Fort Oglethorpe* for instruction, Lieut. CHARLES S. MILLER, Philadelphia.

To Rockefeller Institute for instruction and on completion *to Fort* Oglethorpe for instruction, Major JAMES P. KERR, Pittsburgh. On completion *to Camp Devens,* Ayer, Mass., base hospital, Lieut. THOMAS A. SHALLOW, Philadelphia. For instruction in laboratory work and on completion *to Army Medical School* for duty, Lieut. MYRON A. ZACKS, Philadelphia.

To San Juan, Porto Rico, base hospital, from Camp Greene, Lieut. JOHN J. DONOHUE, Fractville.

To Washington, D. C., for duty, from Philadelphia, Major ISAAC H. JONES, Philadelphia.

To Williamsbridge, N. Y., for temporary duty, on completion of instruction, Lieut. CLAUDE L. BRADFORD, Pittsburgh.

To the inactive list, Major JOSEPH McFARLAND, Philadelphia.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. CHARLES C. WALLACE, Josephine; WILLIAM H. McKEEVER, Philadelphia; ERNEST W. DOWNTON, Starrucca.

Porto Rico

To San Juan, Porto Rico, as commanding officer of base hospital, from duty as advisor to the governor of Porto Rico, Major W. F. LIPPOTT, San Juan. Base hospital, Capts. WALTER A. GLINES, LUIS G. DEQUEVEDO, San Juan; Lieuts. DOMINGO A. CRESCIONI, Comerio; FRANCISCO J. M. HERNANDEZ, Juncos; RICARDO MESTRE, FELIX G. DE LA TORRE, Mayaguez; FERNANDO H. JANER, Patillas; CHARLES S. MOSS, Ponce; PEDRO R. CASELLAS, JOSE C. FERRER, PEDRO G. IGARAVIDEZ, San Juan.

Rhode Island

To Army Medical School for instruction, Lieut. JOHN L. HEALY, Newport.

To Fort Oglethorpe for duty, from Fort Oglethorpe, Capt. JAMES HAMILTON, JR., Providence.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. CHARLES M. COLLINS, Providence.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. CARL R. DOTAN, Providence.

South Carolina

To Army Medical School for instruction, Lieuts. CARROLL J. SCURRY, Cross Hill; THURMAN G. WRIGHT, Fairmont.

To Brooklyn, N. Y. base hospital, from Williamsbridge, Capt. MORGAN P. MOORER, Georgetown.

To Camp Lee, Va., base hospital, from Boston, Lieut. RALPH H. McFADDEN, Chester.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieut. THOMAS H. SYMMES, St. Matthews.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. HARRISON A. PRUITT, Anderson.

To Fort Oglethorpe for instruction, Lieut. REMBERT J. CONEY, Eutawville; JOHN M. BARNWELL, Florence; COLLINS E. SMITH, Ridgeville; WILLIAM R. BLACKMAN, Rock Hill.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut, CARROLL S. HOWELL, Marion.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School* for duty, Lieut. FRANCIS A. COWARD, Columbia.

To Waco, Texas, from Fort Riley, Lieut. JAMES H. CRAWFORD, Castlewood.

South Dakota

To Fort Leavenworth, Kan., Department Laboratory, Lieut. GEORGE A. STEVENS, Sioux Falls.

To Fort Riley for instruction, Lieut. WILLIAM J. FERGUSON, Milbank.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieuts. DANIEL D. RABER, Buffalo; HARLEY D. NEWBY, Parker.

Tennessee

To Camp Bowie, Fort Worth, Texas, as division psychiatrist, from Camp Bowie, Lieut. HOWARD M. FRANCISCO, Nashville.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieut. JOHN E. SILVER, Jellico.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. ROBERT L. MOTLEY, JR., Dyersburg.

To Fort Oglethorpe for instruction, Capt. HERBERT H. McCAMPBILL; Lieuts. SAMUEL D. JOHNSON, Knoxville; JOHN C. WITHERINGTON, Munford; JOHN C. WOODS, Newport; BENJAMIN F. LORING, Union City; from Camp Beauregard, Lieuts. JOHN W. FROST, Fruitland; BENJAMIN L. SCHOOLFIELD, Memphis; from Camp McClellan, Lieut. THOMAS M. HARPER, Medina; from Camp Sevier, Lieut. WILLIAM H. DELAP, La Follette.

To Fort Riley for duty, from Fort Riley, Major WILLIAM A. HOWARD, Cookeville.

To Hoboken, N. J., for duty from Camp Devens, Capt. HOWARD L. WALKER, Memphis.

To Markleton, Pa., for duty, from Fort Oglethorpe, Lieut. ROBERT PILLOW, JR., Columbia.

To New Orleans, Charity Hospital, for instruction and on completion *to Camp Sevier,* Greenville, S. C., base hospital, Lieut. THOMAS JENNINGS, Peabody.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, from Fort Oglethorpe, Capt. CLAUDE A. KRAZIER, Knoxville.

Honorably discharged, Lieut. THOMAS A. MITCHELL, Nashville.

Texas

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Lieut. GEORGE B. GLOVER, Refugio.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. JOHN G. McLAURIN, Dallas, Texas.

To Corpus Christi, Texas, for duty from Fort Riley, Capt. THOMAS P. DOOLE, Eagle Lake; Lieut. GEORGE W. GRISWOLD, Cisco.

To Fort Benjamin Harrison, post hospital, Lieut. EDWARD C. BRANNON, Waco.

To Fort Oglethorpe for instruction, Lieuts. WILLIAM M. DICKENS, Greenville; CHARLES M. McMILLAN, Plantersville; AUSTIN F. LEACH, Weatherford; from Camp Travis, Lieuts. JAMES W. McKEE, Houston; JOHN J. GILL, Lamasco; BENJAMIN F. GIBSON, Lufkin. From Oklahoma City, Lieuts. CHARLES E. SCULL, San Antonio; DALLAS SOUTHARD, Stamford; CLAUDE E. PIERSALL, Wolfe City.

To Fort Riley for instruction, Lieut. LAMARTINE O. DUDGEON, Sweetwater; from Taliaferro Field, Lieuts. V. BASCOM COZBY, Grand Saline; JAMES D. CURRIE, Hico; REESE F. CURRIE, Manchaca; NOAH D. CARTER, Robstown.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. MATTHEW F. KREISLE, Austin.

To Houston, Texas, Signal Corps, Aviation School, Lieuts. FRANKLIN B. KING, Lott; DAVID L. LOWRY, Teague.

To Rockefeller Institute for instruction and on completion *to Camp Jackson,* Columbia, S. C., base hospital, from Fort Riley, Lieut. JOSEPH J. ROBERTSON, Kingsville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. LEMM FAULK, Alba.

Resignations of Lieuts. CHARLES H. REAGAN, Beeville; THOMAS J. RATLIFF, Colorado, are accepted.

Utah

To Camp Logan, Houston, Texas, base hospital, from Oklahoma City, Lieut. EZEKIEL R. DUMKE, Ogden.

To report by wire to the commanding general, Western Department, for assignment to duty, Capt. GUY C. EMERY, Salt Lake City.

To St. Louis, Mo., for duty from Fort Douglas, Capt. ARTHUR A. BIRD, Magna.

Vermont

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. HENRY E. SOMERS, West Derby.

To Fort Oglethorpe for instruction, Capt. EDWARD F. MURRAY, Burlington; Lieut. WILLIAM O. HUTCHINSON, Washington.

Virginia

To Allentown, Pa., base hospital, from Fort McHenry, Lieut. ROBERT F. GAYLE, Richmond.

To Army Medical School for instruction, Lieuts. JAMES H. WALTON, Cherrydale; ROLAND E. S. TAYLOR, Dante; JAMES W. CLARKSON, Mount Solon.

To Brooklyn, N. Y., base hospital, Lieut. HUBERT K. TURLEY, City Point.

To Camp Lee, Petersburg, Va., base hospital, Capt. EDWARD P. ODEND'HAL, Wytheville.

To Camp McClellan, Anniston, Ala., for duty, from duty as a lieutenant in the Medical Corps, Lieut. GUY B. DENIT, Salem.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. THOMAS H. MASSEY, Warm Springs.

To Corpus Christi, Texas, for duty, from Fort Riley, Capt. HARRY A. JEFFERSON, Clintonville.

To Fort Oglethorpe for instruction, Capts. CHARLES E. SEARS, Airpoint; LEWIS M. ALLEN, Gaylord; Lieuts. ST. CLAIR DARDEN, Branchville; HUNTER McQ. DOLOS, Norfolk; WILLIAM B. McILWAINE, Petersburg; from Camp Lee, Lieut. CLAY M. EASTER, Chincoteague Island.

To Richmond, Va., base hospital, and on completion *to Camp Lee*, Petersburg, Va., for temporary duty, from Camp Lee, Capt. JAMES H. SMITH, Richmond.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieut. PAUL C. DAVIS, Roanoke.

To Washington, D. C., for duty, Lieut. WILLIE S. HODNETT, Richmond.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. JOSEPH C. DUNFORD, Portsmouth.

Washington

To Camp Fremont, Palo Alto, Calif., for duty, from Fort Stevens, Lieut. PAUL C. RIDPATH, Spokane.

To Camp Lewis, American Lake, Wash., base hospital, Lieut. GUY E. MARCY, Montesano.

To Fort Riley for duty, Lieut. CHARLES F. ENGELS, Seattle. For instruction, Lieut. JACOB S. SMITH, Bellingham; from Camp Lewis, Lieuts. CHARLES C. HARBOUGH, Sedro-Wooley; FREDERICK W. WICHMAN, Tenino.

To report by wire to the commanding general, Western Department, for assignment to duty, Lieuts. CLARENCE E. WHITNEY, Buckley; CARL L. TAYLOR, Sumner; CLAIR C. WILCOX, Vancouver.

To Rockefeller Institute for instruction and on completion *to Camp Meade*, Annapolis Junction, Md., base hospital, from Fort Riley, Lieut. WHITING B. MITCHELL, Sumner.

To San Francisco, Calif., for instruction and on completion *to their proper stations*, from Camp Lewis, Capts. PAUL I. CARTER, Port Townsend; FRANK P. GARDNER, Seattle; WILLIAM B. McNERTHNEY, Tacoma. For duty, from duty as a contract surgeon, Lieut. MARCO M. HANSEN, Seattle.

Honorably discharged, Lieut. SHELBY C. SHURICK, Seattle. On account of physical disability existing prior to entrance into the service, Lieut. KENNETH J. HOLTZ, Renton.

West Virginia

To Fort Hamilton, N. Y., for duty, from Fort Oglethorpe, Capt. DAVID HOTT, Morgantown.

To Fort Oglethorpe for instruction, Capt. JOHN E. McQUAIN, Spencer; Lieuts. JOHN S. CAYCE, Ben Bush; BYRON W. STEELE, Mullens; JOSEPH H. FERGUSON, Sherrard; FERDINAND W. WIEHE, Wheeling.

To Hoboken, N. J., for duty, from Army Medical School, Lieut. ALVIN McCLUNG, Pickens.

To Newport News, Va., for temporary duty, from Fort Oglethorpe, Lieut. HARRY L. BEARD, Lewisburg.

To Rockefeller Institute for instruction in laboratory work and on completion *to Army Medical School* for duty, Lieut. RALPH LEM. WOODRUFF, Moundsville.

To Washington, D. C., for duty, from Army Medical School, Lieut. DAVID T. WILLIAMS, Martinsburg.

Wisconsin

To Boston, Mass., General Hospital, for instruction in urology and dermatology, Lieut. JOHN W. HANSEN, Milwaukee.

To Camp Cody, Deming, N. M., for duty, from Camp Cody, Lieut EZRA J. MITCHELL, Brodhead.

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. MARTIN F. DUFRENNE, Sun Prairie.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieut. CLARK B. DEVINE, Marshall.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Allentown, Lieut. LEON G. SMITH, Ellsworth.

To Cape May, N. J., for temporary duty, and on completion *to his proper station*, Major NELSON M. BLACK, Milwaukee.

To Corpus Christi, Texas, for duty, from Fort Riley, Lieut. DANA B. DISHMAKER, Kewaunee.

To Fort Riley for instruction, from Sheboygan, Wis., Major EDWARD J. BARRETT, Sheboygan.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. IRVING VAN V. GRANNIS, Menomonie.

To Rockefeller Institute for instruction, and on completion *to Camp Dodge*, Des Moines, Iowa, base hospital, from Fort Riley, Lieut. THOMAS C. CLARKE. On completion *to Camp Sherman*, Chillicothe, Ohio, base hospital, from Fort Riley, Lieut. WILLIAM N. MOORE, Appleton.

To St. Louis, Mo., Washington University, for instruction in urology and dermatology, from Fort Riley, Lieut. OLE A. NELSON, Park Falls.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Caps. FRANK S. TUFFLEY, Boscobel; Lieuts. CHARLES F. REHLING, Fremont; FRANCIS T. H'DOUBLER, Madison; LEONARD J. BACHINSKI, JAMES D. NELSON, Milwaukee; EDWARD C. PFEIFER, Sheboygan Falls; JOHN C. KYLLO, Superior, WILLIAM T. MURPHY, Waukesha.

To Williamsbridge, N. Y., for temporary duty, Lieut. GEORGE N. BRAZEAU, Racine.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. FRANK W. MACKOY, Milwaukee.

Wyoming

To Camp Dodge, Des Moines, Iowa, base hospital, Capt. OLIVER CHAMBERS, Rock Springs.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Reciprocal Relations.—The Alabama State Board of Health reports that reciprocal relations have now been established with Arkansas, Georgia, Iowa, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Ohio, Pennsylvania, Tennessee and Virginia.

Sanitary Work and Infectious Diseases.—In the zone surrounding the camp at Anniston, March 6, five crews of men operating under the direction of the sanitary unit of the United States Public Health Service started to clean out streams and ditches, make fillings, and to carry out other measures for cleaning up and drying out the territory for the protection against mosquitoes. Sanitary measures are also being taken to prevent malaria in the industrial area in Lauderdale and Colbert counties where government industrial plants are under construction. Dr. Jesse L. Prince, Stevenson, of the federal health department, is in charge of the work, assisted by Dr. Samuel W. Welch, Talladega, state health officer.——The smallpox epidemic at Mobile is now on the wane, and cases of measles are becoming fewer. At Huntsville, a general clean-up of the town is in progress, preparatory to a health survey which is to be made under the direction of the civic league and Dr. Carl A. Grote, Jasper, health officer.

ARKANSAS

Sanitary Undertakings.—The state board of health, March 5, sent out circulars containing regulations of the board of health with reference to the control and treatment of persons having venereal disease. This action was urged by Surgeon-General Blue of the United States Public Health Service. To meet the situation, action, urged by Provost-Marshal-General Crowder, has been taken to vaccinate against smallpox and to innoculate against typhoid fever all men named in the selective draft. The idea is to have the men protected against the diseases named before they enter the military camps.

CONNECTICUT

Health Board Matters.—At Hartford, the city board of health increased the salaries of the superintendent of the board of health from $2,700 to $3,000 and of his assistant, from $1,650 to $1,800, both increases to become effective, April 1.——During February the death rate for the city was 18.9 per thousand of population. During that month there were reported 20 cases of tuberculosis, 20 of diphtheria, 24 of scarlet fever, 7 of chickenpox, 13 of measles, 68 of whooping cough, 2 of erysipelas and 5 of mumps. The school medical inspectors examined 1,587 children and excluded 177.

FLORIDA

Miscellaneous.—In 1917, Florida, with a resident population of about 1,000,000, had a death rate of 514, as against 9.3 per hundred thousand for the previous year. Of the deaths, 143 were due to homicide, 73 were due to railway accidents, 53 to automobile accidents and 3 to street car accidents.——At the annual election of officers of the Anti-Tuberculosis Association at Jacksonville, March 7, Dr. Harry L. Brown was elected president in place of Dr. Louis A. Bize, Tampa, who retired from the organization as vice president. Dr. Joseph Y. Porter also retired as one of the honorary vice presidents.——An appropriation of $10,000 was asked from the city council of Jacksonville to be used by the city to abolish mosquito breeding places. The work is to be done in cooperation with the United States Public Health Service and the American Red Cross.

GEORGIA

Abolishing Health Office.—On account of a large deficit in the city finances the city council of Columbus voted, March 8, to abolish the position of city health officer, which was occupied by Dr. John T. Moncrief. This office involved a municipal expenditure of about $3,000.

Cooperation with Government Authorities.—At Atlanta, March 6, city, county and federal health officials met for the

purpose of adjusting differences in regard to carrying out health regulations. Among the official persons at the meeting were Dr. Leslie L. Lumsden, Washington, D. C., and Dr. Randolph M. Grimm, Spartanburg, of the United States Public Health Service, who had been engaged in extra-cantonment work, and John P. Kennedy, city health officer, with other members of the city health administration. By the cooperation of all concerned in the work, duplication of efforts will be avoided, and money saved.

ILLINOIS

New Officers.—At the annual meeting of the Cass County Medical Society, held at Virginia, February 28, the following officers were elected: president, Dr. John G. Franken, Chandlerville; vice president. Dr. George Bley, Beardstown; secretary, Dr. William R. Blackburn, Virginia, and treasurer, Dr. Charles M. Hubbard, Virginia.

Personal.—Dr. Guy A. Sloan, Bloomington, has been elected county physician.——Dr. Walter M. Cress, Atkinson, has sold his residence and will go into a sanatorium on account of ill health.——The state civil service commission has announced the appointment of the following medical examiners, Dr. John W. Hutton, Newton; Dr. Omar A. Kell, Salem; Dr. Frank B. Hiller, Pinkneyville; Dr. W. Brown Baird, Mount Carmel, and Dr. Ross L. Moter, Albion.

Chicago

Symposium on Angina Pectoris.—The Institute of Medicine will meet March 28 in the LaSalle Hotel at 8 p. m. to hear a symposium on angina pectoris. The papers will include "Personal Experiences of One of Our Members," "Pathology of Angina" by Prof. E. R. LeCount, "Coronary Thrombosis in Relation to Angina" by Dr. J. B. Herrick, and "Clifford Albutt's Views in Regard to the Etiology of Angina" by Dr. Robert H. Babcock. Fellows of the Institute are privileged to invite guests.

Health in February.—During the second month of 1918 there were 2,808 deaths from all causes, as against 3,457 for the same month of 1917. The rate was 14.7 for 1918 and 17.7 for 1917. During the month, there were 4,773 cases of communicable diseases reported, as against 8,159 for the preceding year. Decreases were especially notable in typhoid fever, chickenpox, scarlet fever, diphtheria and pneumonia. There were 159 deaths of children under 2 years of age from diarrhea and enteritis, as compared with 191 for the same period of 1917.

Lectures on Tuberculosis.—Under the auspices of the Chicago Tuberculosis Institute, a course of lectures on tuberculosis in relation to modern problems will be given at the City Club during March and April. The first lecture of the course was given March 21 on "The Press and Tuberculosis," by Dr. W. A. Evans. The succeeding lectures will be delivered by Dr. C. C. Stillman on "The Red Cross and Tuberculosis," March 28; "The United Charities and Tuberculosis," Eugene T. Lies, April 4; "The War and Tuberculosis," Dr. George T. Palmer, April 11, and "Occupation for Disabled Soldiers with Special Reference to Tuberculosis," by John E. Ransom, April 18.

IOWA

Personal.—Dr. Daniel J. McCarthy, Davenport, a member of the Red Cross contingent in Roumania, was compelled to leave Jassy on account of the advance of the Germans for Odessa. Arrangements had been made for this mission to return through Austria-Hungary and Switzerland.——Dr. Charles S. Grant, major, M. R. C., has been elected a member of the school board of Davenport.——Capt. John H. Peck, M. R. C., of Camp Dodge has been elected president of the Iowa Association for the Prevention of Tuberculosis.

KENTUCKY

Investigation of Milk Prices.—Owing to the prevailing prices of market milk, it has been stated that a probe will be ordered by the food authorities at Washington, D. C. The retailers have reduced the price paid the producers 2 cents a gallon, but have not reduced the price to consumers.

Changes in State Board of Health.—March 5, the state senate passed a bill abolishing the state board of health and recreating it with ten instead of eight members. Under the new measure the governor is to appoint four physicians from the present board, two from the tuberculosis commission, one member of the state board of pharmacy, and two physicians from the state at large. A tenth member is to be named by the board. The bill allows a county or contiguous counties to declare themselves health districts with a full time health officer and laboratory and with the supervision over school, hotel and food inspection. The districts also take over the duties formerly performed by the state tuberculosis commission.

Farm Colony for Feebleminded.—Another progressive bill has passed the senate which provides for the establishment of a home and farm colony for feebleminded and epileptic persons. An appropriation of $25,000 for two years is made for the establishment of the colony. The bill provides for a per capita payment of $75 for the maintenance of the inmates, in lieu of the amount now allowed for the home care of pauper idiots. The "committee" system of caring for such wards is abolished. The farm colony is to be under the care of a physician as superintendent who must be an expert, with at least two years' experience in an institution of like nature. His salary is not to exceed $4,000 annually. This bill was introduced as a result of an exhaustive survey by a commission appointed by the governor, which found a deplorable state of affairs existing in the care of the feebleminded of the state.

General Clinic Organization Proposed.—In connection with a survey of the Lexington board of charities made under the direction of Mayor Rogers, Miss Byington, a specialist in social work from New York, who is in charge of the survey, recommends the establishment of a general clinic organized with the Good Samaritan Hospital as a basis. She submitted a working plan for such a clinic, which would abolish the office of city physician, and provide that the work, including the medical follow-up work, be performed by a physician in the hospital, with such assistants as might be appointed and with the aid of the Public Nursing Association. To initiate the plan, it is proposed that a committee be appointed consisting of the president of the county medical society, president of the board of health, chief of the staff of the Good Samaritan Hospital, and a physician from the St. Joseph's Hospital, as well as a member of the social welfare committee.

Louisville

Control of Slaughter Houses.—For the first time Louisville has arrived at a working basis for the control of slaughter houses. In the reorganization of the health office, one of the departments established is food and dairy inspection under the supervision of Dr. William E. Gary. A comprehensive ordinance prescribing the sanitary regulations of slaughter houses has been passed, and many houses which are unable to come up to the requirements will be forced to close. Major Lunsford D. Fricks, of the United States Public Health Service, is cooperating with the city health office. This department is specially interested in abating the fly nuisance in summer.

MARYLAND

Personal.—Dr. Thomas H. Brayshaw, who has been confined to his home at Glenburnie, for four weeks from an attack of pneumonia, is improving.

Hospital for Blind Soldiers.—The Surgeon-General's Office has announced through the division on woman's war work, committee on public information, its plans for using the Baltimore estate of Mrs. T. Harrison Garrett, tendered to the government several weeks ago for the treatment of maimed or otherwise disabled soldiers. The woman's committee in a statement disclosed the general plans for reeducating the blind among returning troops. The estate comprises 99 acres and will be used as a complete hospital school for the blinded officers and men. There are two houses, one of which will be used for enlisted men and will accommodate 150 persons, and the other will serve as officers' quarters and will afford accommodations for twenty-five men. A swimming pool and gymnasium will be provided at the estate. Women relatives of the men will be asked to participate in the work of the school and will be given an insight into the difficulties and best methods of training the blind.

MASSACHUSETTS

Boston

Prenatal Letters.—The *Public Health Bulletin* for September, 1917, contained an announcement that the department had prepared a series of nine "Prenatal Letters," one for each month of the pregnant period. These letters are intended for distribution, at monthly intervals, to expectant mothers whose application may be made to the department direct, or

may be transmitted to the department through the attending physicians, visiting nurses, etc. Specimen sets of the letters will be gladly sent to any physician on request. The cooperation of all physicians is sought in the circulating of these letters, which are intended to help reduce the high infant mortality rate in Massachusetts, which is about 100 per thousand infants born. Application should be addressed to the Division of Hygiene, State Department of Health, Boston.

MICHIGAN

Violation of Quarantine Regulations.—Dr. R. M. Olin, secretary of the state board of health, has charged that the city of Jackson has modified the quarantine regulations of the state without authority for so doing. As a result of his charge, Camp Custer soldiers have been forbidden to leave trains at Jackson.

Funds Exhausted.—At Grand Rapids the county auditors have objected to paying a bill of $5,000 rendered by the city for the care of cases of contagious disease, because of the rapid exhaustion of the $50,000 county fund for this purpose, even before the bill for about 300 smallpox cases was paid. It is said that much money has been expended by the welfare department in the care of tuberculous cases which properly should have come from some other fund. An investigation by the county attorney has been ordered.

College to be Taken Over.—It was reported, March 6, that steps were being taken to incorporate the Detroit College of Medicine and Surgery as a part of Detroit's educational system, eventually to become a department of the University of Detroit, which is in contemplation. The matter was brought before the city council, March 12, but no definite action was taken. It is said that the school is in debt to the amount of about $30,000, and that its absorption into the city's educational system is part of the plan to rehabilitate it and put it on a better financial basis.

MINNESOTA

Personal.—Dr. A. E. Shannon was appointed health officer at Bemidji, March 6.——Dr. A. H. Doty, Minneapolis, was acquitted by a jury in the Ramsay County courts, March 6, on a charge of criminal malpractice.——Dr. W. M. Sweeney, local health officer at Red Wing, is disabled by a fracture of the foot which occurred several weeks ago.

Contagious Diseases and Death Rate.—Two new cases of smallpox were reported, March 5, from the Red Wing Seminary, making the total number of patients in the city eight, seven of whom are quarantined in the seminary.——One case of diphtheria and one of scarlet fever were added to the number of contagious cases in the city.——In 1917, there were 23,433 deaths in Minnesota, practically half of which were from preventable causes. The death rate, however, was lower than for the preceding year. During recent months, according to a bulletin of the state board of health, cancer has been the cause of more deaths than either tuberculosis or pneumonia.

MISSOURI

State Health News.—March 6, it was reported from Kansas City that two more cases of spinal meningitis were isolated, and further orders were issued regarding the disease. On that day, there were seven cases of smallpox in the city and the members of the contagious disease division of the state board of health were busy vaccinating the members of construction groups in the city. Also, a new case is said to have been found.——Inmates of the Isolation Hospital for Smallpox at Leeds have made complaints about the conduct of the hospital and particularly about the food. A rule was made that soldiers having smallpox would not be received. The government authorities were notified, for they must make provision for soldiers. At St. Louis a physical instructor in one of the high schools developed smallpox, March 7, and a general vaccination in pupils was instituted.——At Louisiana, Dr. Hardin, city health officer, received a report from the state bacteriologist at Jefferson City, March 6, that out of four specimens of water, one was found bad, and the people were advised to continue boiling the water until it proved to be safe.——Five new ambulances were purchased, March 6, for the use of the health department in Kansas City.——At a meeting of the Engineer's Club in St. Louis at the club, March 6, the engineer of the city plan commission declared that the congestion in certain parts of St. Louis was responsible for much ill health and delinquency of children and adults. He described the plan of redistricting, as well as the zoning system in various other cities, and he explained why St. Louis should adopt the zoning system to promote the growth and the health of the city.

MONTANA

Hospital Items.—The campaign for $80,000 for the Bozeman Deaconess Hospital, ended February 16, with a total subscription of $96,144.50.——Mr. R. O. Wilson has resigned as registrar at the state college, Bozeman, to accept a position as business manager of the Murray Hospital, Butte.

Appropriation for Laboratory.—The board of county commissioners of Big Horn County has made an appropriation for laboratory equipment for the county health officer, Dr. Wilson A. Russell, Hardin, who has done exceedingly good work in rural school inspection and sanitation during the past year.

Deaths of Adults from Poliomyelitis.—A report from Red Lodge, February 18, announces that two men, aged 30 and 28, living on a ranch near that place, died of poliomyelitis. One of the patients died after being brought to Red Lodge. The other presented himself at the office of a local physician shortly after the death of the first patient, who was the latter's employer.

NEBRASKA

Smallpox.—An epidemic of smallpox is reported to be current in Bayard and Gering.——At Kearney, schools, theaters and other places of public meeting were closed on account of the prevalence of contagious diseases, especially smallpox, measles and mumps.

Base Hospital Mobilizes.—Major Arthur C. Stokes, of the Medical Corps of the Army, has been ordered to active duty at Omaha, Neb., to mobilize the enlisted personnel of the base hospital for the state university. After the mobilization the base hospital will go to Fort Des Moines, Iowa, for temporary duty and training.

Control of Social Diseases.—At Omaha an ordinance has been prepared declaring that an emergency exists in Omaha in connection with the prevalence of social infections, and requires that the diseases be reported. The health commissioner is ordered to isolate the victims for such time as may be necessary. The health officer, Dr. Ralph W. Connell, Omaha, has ruled that in the occurrence of social diseases, men and women must be treated alike, and that they will be held under equal penalties.

NEW YORK

Recommendations on Narcotic Addiction.—The joint committee on public health of the New York Academy of Medicine and of the New York Psychiatrical Society has presented recommendations on the care of the narcotic addiction problem. The committee recommends that the federal government abolish the manufacture of heroin, control and regulate the sale and distribution of opium and cocain and that the attention of the government be limited to these drugs unless occasion seems to demand inspection of others. The investigations of the committee show that the drug habit as a result of illness or operation of mental states is a negligible proportion of the total. About 4 per cent. of cases investigated indicate that the habit is formed through the advice and prescriptions of physicians using the reduction treatment. It is recommended that treatment be given only in properly organized hospitals or under institutional conditions, and for the present that psychopathic hospitals or pavilions be used for this purpose. New legislation is recommended to control drug addiction and the use of drugs by physicians more definitely than does the legislation at present in force. The committee recommends also that a thorough study be made of the extent and causes of drug addiction, including information as to the age, sex, occupation, environment, mental and physical condition of victims, and as to how the habit was formed.

Miscellaneous.—On account of a difference of opinion as to appointees between the mayor of Watervliet and the town council, the city has been without a health board for some time. March 7, Deputy State Health Commissioner Matthias Nicoll, Jr., in a letter to the common council urged the appointment of a board in compliance with the law. Dr. John Haswell is the health officer, but has not power to act in certain matters that require the authority of a full board.——At Little Falls, March 5, the public health nurse reported more work than she could handle and asked for the appointment of an additional school nurse. On account of pollution of the water supply, the health officer advised the boiling of the water. On that date there were no smallpox cases in

the city. Over 1,500 persons had been vaccinated during the epidemic.——At Syracuse, March 5, it was proposed that the board of supervisors provide for an extension of the Onondaga sanatorium to accommodate more tuberculous persons, who are said to be a menace to others in their homes, boarding houses and other public places.——March 4, Mayor Stone of Syracuse announced the selection of a special advisory committee for the health bureau. After consultation with the officers of the Academy of Medicine the following were appointed: Dr. William A. Groat, Dr. Edward O. Reifenstein, Dr. Frederick H. Flaherty, Dr. Alfred G. Doust and Dr. J. Mumford Keese.——The residents of Olean were advised by the city health officer, March 6, to boil the water.——At Glens Falls, according to the report of the health officer, there were, in 1917, 343 births and 300 deaths. The total number of communicable diseases during the year was 296. At Buffalo, in February, there were 1,095 and 604 deaths. ——The government is to give attention to the erection of needed houses for Buffalo munition workers, according to Health Commissioner Fronczak, who returned, March 6, from Philadelphia where he attended a meeting on war housing. It was decided that houses of a permanent character instead of barracks should be erected near munition works, and that it would be better to erect houses than to provide additional street cars, the building of which would take as long or longer.

New York City

Gifts and Bequests.—

To Mount Sinai Hospital, New York, $75,000, to be added to a former contribution of $125,000 for the erection of the Lewis Einstein Memorial Pavilion at Mount Sinai Hospital, by the will of Henry L. Einstein.

Obstetrical Society Resolution.—At the meeting of the New York Obstetrical Society, February 12, that body in a resolution endorsed the action of the public health committee of the New York Academy of Medicine in instituting an investigation of the mortality associated with childbearing, and hearty cooperation was promised.

Doctor Charged with Frustrating Draft.—Dr. Philip G. Becker was arrested, March 15, charged with conspiring to violate the espionage law by giving soldiers drugs so that they would appear seriously ill and be invalidated out of the service. It is alleged that the drugs employed produced in the men attempting to evade service a condition simulating Bright's disease. Becker was released on $10,000 bail.

Government Takes Over Hudson Street Hospital.—The Hudson Street Hospital has turned over its wards to the Navy Department for the period of the war. Dr. Hughes Bayton and Dr. Joseph P. Hoguet will continue to head the medical staff of the hospital. There will be room for about sixty-five naval patients and arrangements have been made for the immediate occupancy of the wards by the navy men. The ambulance service of the hospital has been discontinued.

Ellis Island Ready to Receive Wounded Soldiers.—The United States Department of Labor has made a definite agreement whereby Ellis Island has been turned over to the Army and Navy. It is the intention of the Navy Department to use the space allotted to it for the accommodation of several thousand sailors pending their assignment to ships, and the War Department expects to use its portion of the space for temporary quarters for wounded men before removing them to permanent hospitals. Part of the property has already been occupied by the military branches of the government.

PENNSYLVANIA

Personal.—It is said that Dr. Edgar M. Green, Easton, a member of the advisory board of the state health department, is mentioned as the probable successor of the late Dr. Samuel G. Dixon, health commissioner.

Conference of Industrial Physicians and Surgeons.—The Department of Labor and Industry will hold its Sixth Conference of Industrial Physicians and Surgeons in the hall of the house of representatives at Harrisburg, April 9. At the morning session industrial health hazards arising out of the war emergency will be the subject discussed. The afternoon session will be devoted entirely to the subject of workmen's compensation. The question of hernia in its relation to the compensation law will be discussed thoroughly and the possibility of amendments to the present Pennsylvania workmen's compensation law will be discussed.

Philadelphia

Dr. Goepp Resigns.—After fifteen years of faithful service, Dr. Max R. Goepp, dean of the Philadelphia Polyclinic and College for graduates in medicine has resigned the deanship, but still retains his position on the staff as professor of clinical medicine. Prof. George H. Meeker has been appointed dean of the polyclinic department of the postgraduate school of the University of Pennsylvania.

Aid Hospital Unit.—A committee representing the employees of the Frankford Arsenal presented the University Base Hospital Unit No. 20 with $543.39. The money which was turned over to Major John B. Carnett, commander of the unit, was the proceeds of a military ball given by the arsenal employees, February 14. During the last few months the arsenal employees have contributed more than $3,000 to the unit.

City Plans Mosquito War.—The city council will be asked by Director of Public Work Datesman to appropriate an additional $20,000 for a campaign to exterminate mosquitoes in the vicinity of the League Island Navy Yard and the Hog Island shipbuilding plant. An appropriation of $10,000 for that purpose has already been made. Director Datesman is especially anxious to have the second appropriation at once, because now is the time to make effective warfare on the mosquito.

Personal.—Four prominent medical men of this city have just received signal honors at the hands of the United States government for service in France with the American expeditionary forces. The men to be advanced are Major Richard H. Harte, the surgical head of the United States Base Hospital No. 10, organized by the Pennsylvania Hospital; Major George William Norris, medical director of the same hospital unit; Major Robert G. LeConte, surgical commander of Base Hospital No. 5, Methodist Hospital, and Capt. John H. Gibbon, a surgeon of Base Hospital No. 10.——Dr. Henry D. Jump, the retiring president of the county medical society, was presented with a gavel at the meeting of that society, February 27.——Dr. Henry H. Freund has been appointed acting chief police surgeon to fill the place of Dr. Hubley R. Owen, who is in the military service, on leave of absence from the city. The salary is $4,000.——Drs. R. Ray Willoughby and Louis M. Golden have been appointed assistant medical inspectors of the bureau of health.

RHODE ISLAND

Venereal Diseases in Institutions.—Through the efforts of Dr. John G. O'Meara and others, a bill has been passed by both houses of the legislature amending the act to provide for the supervision, administration and control of penal and charitable institutions. The amendment provides that the penal and charitable commission shall take all steps necessary to protect the inmates of such institutions against all forms of contagious and infectious diseases. Particular emphasis is laid on venereal diseases, which shall be properly treated while the inmates are in the institutions. It is also provided that, at the expiration of their sentences they may be detained until such time as they are free from disease, if, in the opinion of the institution physician, they are still potential carriers of infection.

CANADA

Medical Week at Hamilton.—The period from May 27 to June 1, 1918, will be celebrated as medical week in Hamilton. The Canadian Medical Association, the Ontario Medical Association, the Canadian Public Health Association and the Ontario Health Officers Association will hold meetings at this time. At the meeting of the Canadian Medical Association, Dr. H. Beaumont Small, Ottawa, will preside, succeeding Dr. James McKenty, Winnipeg, resigned. Dr. Lewellys F. Barker, Baltimore, will deliver the address on medicine, and Dr. Charles H. Mayo, Rochester, Minn., will deliver the oration on surgery.

General News.—The Aesculapian Club, Toronto, has elected the following officers for the ensuing year: president, Harry B. Anderson; vice president, Richard A. Reeve; secretary, George Elliott (reelected); treasurer, Edmund E. King (reelected); executive committee, Samuel Johnston, Frederick A. Cleland, George H. Bowles and J. Milton Cotton. This year the club donated $200 to the endowment fund of the Halifax School for the Blind.——Last year the deaths in the city of Montreal among children under 5 years of age were almost 1,000 fewer than in 1913, although the population has increased 15,000 during the five years.——The province of Manitoba, with a population of 521,748, shows a decrease in births, marriages, and deaths in 1917 from 1916 as follows: Births decreased 3,102, the total being 14,743; deaths decreased 350, the total being 5,125; marriages decreased 1,092, the total being 4,045.——Dr. Forbes F.

Godfrey, M.P.P., Mimico, Ont., has a bill in the Ontario legislature which provides that the contracting parties to marriage must secure certificates from physicians guaranteeing that they are not afflicted by any incurable disease, before they can be married. It is doubtful, however, that the bill will become law at the present time, as public opinion is not sufficiently educated for it.

Personal.—Major Malcolm M. Crawford, surgeon to the Orpington Hospital, England, is home in Toronto on two months' leave of absence.——Dr. Harry B. Anderson, Toronto, is spending a holiday in Florida.——Dr. Murray McFarlane, Toronto, has returned from a holiday in the Southern States. ——Dr. John L. Chabot, M.P., Ottawa, has refused the appointment of deputy speaker of the House of Commons, but will second the address in reply to the speech from the throne.——The Military Cross has been awarded the following eight Canadian medical officers for courage and devotion in aiding the wounded under fire and gas: Capts. Thomas Herbert Bell, Winnipeg; John P. S. Cathcart, Pt. Lamberton; Franklin F. Dunham, Emmet A. McCusker, Regina; Arthur Packer, Stanley Ross, William Henry Scott and James Walter Woodley.——Lieut.-Col. P. Walter H. McKeown, Toronto, who has been in command of the Kitchener Hospital, Brighton, England, has been given command of another Canadian hospital in England, replacing Col. Charles F. Wylde, Montreal.——Gen. George A. Stirling, Ryerson, Toronto, is on a trip to the Pacific coast, and when last heard from was in Vancouver, B. C. He will spend some weeks in California and other western points.——Lieut.-Col. Ethelbert B. Hardy, in command of the Toronto Military Base Hospital, has resigned from the presidency of the Great War Veterans' Association.——Capt. Fred C. Wilson, M.D., who has been overseas for twenty months with the Canadian Army Medical Corps, has been invalided home to Canada, after a severe attack of pneumonia.——Capt. Willis C. Connell, M.B., who was back in Canada to finish his medical course, has returned to the front as lieutenant in the Royal Army Medical Corps, and will serve in German East Africa.

GENERAL

Public Health Service Legislation.—On March 14, Representative Medill McCormick of Illinois introduced into Congress a bill (H. R. 10716) to transfer the Public Health Service from the Department of the Treasury to the Department of the Interior. The bill was referred to the Committee on Interstate and Foreign Commerce for report.

Weekly Health Index.—The bureau of the census is publishing each week the mortality reports from the largest cities in the United States. For each city the total number of deaths reported, stillbirths excluded, the death rate, the number of deaths under 1 year of age, and the proportion of infant deaths to total deaths, are given. When obtainable, the same data for the previous five years are given, in order to permit comparison. For the week ending March 9, the best rate per thousand is that of Grand Rapids, 8.6, after which come Spokane, Wash., 9.3; Seattle, 10.0; St. Paul, 10.3, and Portland, Ore., 10.7. The highest records are Birmingham, Ala., 25.8; Baltimore, 25.0; Washington, D. C., 23.6; Dayton, Ohio, 22.6; Richmond, Va., 22.3, and Memphis, Tenn., 22.0.

International Surgical Society.—Dr. W. W. Keen requests THE JOURNAL to announce that, at a meeting of the International Surgical Society held in Paris, Nov. 3, 1917, by the delegates from Belgium, France, Great Britain, Serbia and the United States, it was agreed that the International Surgical Society should be dissolved after the publication of the volume of transactions of the meeting held at New York, April 14, 1917. Any money remaining after the publication of this volume is to be divided pro rata among the members. Each member of the Austro-Germanic group will receive his share, but the amount belonging to members from other nations is to be applied to some object of scientific reparation in Belgium. It is proposed after the war to create a new organization on a similar basis, to be called the Inter-Allied Surgical Society.

Saving One Hundred Thousand Babies.—As announced by the federal children's bureau, the campaign to save 100,000 babies and children under 5 years of age during this, the second year of the war, will be inaugurated by a national weighing and measuring test beginning April 6, of which mention has been heretofore made. That each state may have knowledge of just how many children are expected to be saved within its borders during the year, the bureau has established the quota of each on the basis of the number of children under 5 years as shown by the census of 1910. In a bulletin recently issued, the exact number assigned to each state is given in a tabulation, and though the quota may be criticized as it is applied to some states on account of the variation in death rates in the states, yet it is believed that the figures are as fairly proportioned as possible.

FOREIGN

National Medical Congress in Mexico.—The fifth national Mexican medical congress was held at Puebla in January, the first for several years, on account of the unsettled condition of the country. Among the twenty-four subjects chosen for discussion were prophylaxis of blindness, induced premature delivery, the foods used by the native Mexicans, treatment of Mexican typhus, and prophylaxis of syphilis, pyorrhea, and of diseases of domestic animals liable to be contagious to man. The military medical department was represented by Dr. A. Butron y Rios, who delivered an address on the relations of the Red Cross to the army medical department and the military authorities, in times of both peace and war. The Mexican Red Cross was officially organized in 1910, and he outlined plans for its further development. Dr. F. Zarraga presided at the congress; Dr. R. E. Cicero served as secretary general. The other members of the executive board were Drs. G. Mendizabal, S. Garcia, J. Villareal, J. Gonzalez, F. Banda, M. G. Zavala, J. Terres, and the treasurer, Prof. R. Medellin.

CORRECTION

Malposition of the Descending Colon.—In the article on this subject by Dr. A. B. Cooke, in this issue of THE JOURNAL, page 842, the illustrations and legends are transposed.

CUBA LETTER

HAVANA, March 14, 1918.

The Milk Problem

The end of Spanish rule in Cuba marked the beginning of a vigorous sanitary campaign to eradicate the terrible evils of yellow fever, malaria, smallpox, etc. A few years later the Republic of Cuba was one of the healthiest countries in the world, and the national board of health could proudly announce that yellow fever and malaria were no longer endemic diseases in the island. But if Cuba and the Cubans are proud of their sanitation, if it is true that a wonderful improvement has been achieved in a few years, it is true too that there is a great deal yet to do. Havana and the leading cities of Cuba are certainly marvels of cleanliness, but it ought to be remembered that the riches and wealth of a country are not in the cities; it is in the country and among the countrymen of Cuba that hygiene and hygienic methods are still very faulty; modern methods have not yet reached many places in the island.

The milk supply, a matter of vital interest in all countries, is deficient in Cuba to a great extent. We believe that the dangers of milk are not in the amount of water added to it by conscienceless merchants but in the amount of bacteria conveyed to the milk through improper milking with soiled hands and into soiled containers, and by the transportation to the cities in open wagons or on horseback in the very high temperature prevailing in Cuba. We do not hesitate to say that milk under such conditions is the best culture medium for all kinds of bacteria.

Some years ago the board of health started to punish milkmen whose milk showed the addition of water or of foreign ingredients. Everybody thought that very soon the milk would be pure and wholesome, but it has not been so. The merchant that adulterates his milk does not care if the board of health inspector confiscates all his supply of one day; next day he will add more water and double his earnings, provided, of course, the inspector does not strike his place again.

This problem of the milk is a problem of education in the country, teaching the countryman to be clean and to do things as cleanly as possible; it is necessary to establish competition and compel the milkmen and dairymen to build up-to-date stables and to use modern methods of transportation with refrigeration. The children, the future generation of men, need pure milk, and this article of food, so utterly necessary, must not be the subject of exploitation and excessive profit; punishment will never be too severe for those who poison the little ones.

Recently two young Cubans, Drs. Ramos and Bluhme, established a laboratory to modify milk according to medical formulas. The dairies and laboratories are models of their kind, and a wonderful and well deserved success has been attained. But we must say that the cost of the milk from this laboratory is prohibitive for the poor.

On the other hand, the authorities must instruct the public on the dangers of using just any milk, especially for children; the consumer must be taught to inspect the wagon and the bottles and the man who brings his supply of milk; we have seen some of these milk wagons and their drivers so dirty and foul that we really wondered if there was any human being who could drink milk handled in such a manner.

The problem of the milk is not an easy one to solve. It will take years of hard struggle, but the battle must be fought.

We are paying for milk 25 and 30 cents a quart, and we think that we deserve clean milk for that price.

PARIS LETTER

Paris, Feb. 21, 1918.

War Tremors

At one of the recent meetings of the Société de neurologie, Drs. Henry Meige and Mme. Bénisty presented a number of patients afflicted with tremors, and emphasized particularly the clinical characters which permit of a differentiation between tremors of organic origin and those of a neuropathic or emotional origin. Among the organic, they insisted on the morphologic and physiologic objective characters of the parkinsonian type, of which they presented a characteristic example consecutive to traumatism. They also showed cases of nervous tremors the result of wounds or of concussion, and also cases of tremors antedating the war, occurring among emotional subjects. They distinguish, besides true tremor, clonic movements which are sometimes confounded with the latter, and which are the result of certain lesions of the peduncular protuberance. In the clinical diagnosis it is essential to examine with care the seat and the form of the tremor. When it is confined to the fingers and is fine and rhythmic, it is nearly always of organic origin. One frequently sees a nervous tremor involving only the flexors and extensors of the wrist, or the pronators and supinators without any involvement of the fingers. When studying a tremor it is essential to determine by manual palpation the sensations experienced while mobilizing parts of the limb. The waxy flexibility, *flexibilité cirreuse* of Parkinson's disease, is clearly distinct from the cog wheel resistance, *résistance à crans*, perceptible in the majority of nervous tremors, and evidenced by a succession of contractions and relaxations, more or less brusque, occurring at regular intervals.

EVOLUTION OF TREMOR

The evolution of a tremor is also of diagnostic value. It may be (1) progressive, localized at first in one member or in part of a member, but progressively involves one or more of the other members. Parkinson's disease belongs in this class. Or the tremor may be (2) retrogressive, generalized at first but tending gradually to become localized in one member or part of a member. This evolution is characteristic of tremors of neuropathic origin. There is further (3) the migratory tremor, whose localization varies, as do likewise its extent and time of appearance. The migration of the tremor may occur spontaneously. It can be rendered more apparent by changing the position of the member, or if one or more parts or segments are immobilized.

HYPERTONICITY WITH TREMOR

Meige and Bénisty also called attention to the necessity of morphologic examination, which enables one to appreciate the state of permanent hypertonicity of certain persons with tremor, a phenomenon to whose existence in Parkinson's disease Paul Richet and Meige have previously called attention, and which may also be seen in paratonic subjects. It is evidently a manifestation of *déséquilibration motrice congénitale*. Dr. Tinel, chef de clinique à la Salpêtrière, stated that he had observed several cases of neuropathic tremor of a member since this condition had been cured by intense faradic reeducation. He has also noted the migration of certain tremors. The neuropathic tremors are at the same time real, involuntary, persisting during sleep and even under the influence of chloral, but, nevertheless, perfectly influenced by reeducation. There exists in these cases a state of neuromuscular hyperexcitability associated with a persistent emotional state.

Intestinal Parasitism in the Troops

Dr. de Vézeaux de Lavergne recently reported to the Société médicale des hôpitaux de Paris the results he obtained from examination of 200 healthy men at the front and of men who were slightly ill, for the purpose of determining what intestinal parasites are present in these men. His findings may be thus summarized: 1. He never found ova of the ancylostoma. 2. Among 100 soldiers living in the trenches there were found 73 carriers of trichocephalus, 7 carriers of trichocephalus and ascaris, and 8 carriers of ascaris. The total percentage of 88 parasite carriers is comparable to the figures reported of helminthiasis in miners. 3. Among the men living behind the front lines, in the cantonments, there were found 63 per cent. of carriers of trichocephalus and no ascaris. 4. The number of trichocephalus ova found among the well varied from one to five per field. 5. Eosinophilia was never present in any of the trichocephalus carriers, no matter how large a number of parasites were present. On the other hand, eosinophilia was always present among the ascaris carriers; the proportion varied from 4 to 9 per cent. 6. The pathogenicity of these parasites appears to be very limited. The results of the examination made of persons only slightly ill, who were cared for in the ambulances at the front or even in the regimental infirmaries, were as follows: In ten cases of nonbloody diarrhea, unaccompanied by fever, with neither dysentery bacilli nor ameba found in the stools, the ova of parasites were extremely numerous. In eight cases trichocephalus ova were found, from fifteen to twenty per field. In two cases of diarrhea, labeled "rebellious diarrhea with colic," a number of ascaris ova were present. These patients were cured by thymol, calomel and santonin. Finally, among fourteen patients with *courbature fébrile*, the only sign appearing to be fever, remittent in character, a considerable number of trichocephalus ova were found. Thymol seemed to act favorably in these cases.

New Food Regulations

The commissioner of foods has published a decree regulating the manufacture, the sale and the consumption of certain food commodities. The decree deals with (1) the manufacture, the sale and the consumption of bread; (2) a new regimen imposed on the pastry bakers, the biscuit bakers and the confectioners; (3) a regulation imposed on hotels, restaurants and all establishments open to the public; (4) the details of application of the new measures adopted. Henceforth, it is forbidden to manufacture, sell or place on sale, in any form whatever, fresh or dried pastry, pâté crust, or biscuits, as well as confectionery, (*confiserie*) or fruit sweetmeats (*fruits confits*). It is also forbidden to manufacture any chocolate other than the chocolate commonly sold in tablets, in sticks, etc., and containing not more than 36 per cent. of cocoa. In the hotels, restaurants, cafés, etc., it is forbidden to serve or to consume a whole list of certain foods, among which may be mentioned, notably, butter, milk, cream, sugar, and cheese containing more than 36 per cent. of fat. Furthermore, in these establishments meals may be served only from 11 to 2:30, and from 6:30 to 9:30.

Personal

The Académie des Sciences recently elected two national correspondents for the sections of anatomy and zoology. M. Vayssière, professeur à la Faculté des sciences de Marseille, was elected to take the place of the late M. Renaut, and M. Cuénot, professeur à l'Université de Nancy, was elected to take the place of the late Maupas, the naturalist.

The American Red Cross and the Society of Men of Letters

Every one knows that the American Red Cross is spending hundreds of millions of dollars, which are in large part furnished by the subscriptions and donations of American friends of France. They have supported the French military activities by the establishment of hospitals and ambulances, by sending surgical instruments, and by the organization of canteens and shelters in certain situations. They also have provided means to receive and care for orphans and children of refugees and repatriates; they have aided in rebuilding ruined cities, in reconstructing and again making useful agricultural districts, and, finally, they have inaugurated a more methodical and more effective campaign against tuberculosis.

Acting in behalf of the French writers, who are all particularly interested in the rapid reconstruction of all the creative forces of our country, the Société des gens de lettres tendered a reception recently in its quarters at Rougemont to the directors and chiefs of services of the American Red Cross. The delegation, which was in charge of Mr. Homer Folks, director of the civilian work of the American Red Cross, consisted of Major J. H. Perkins, commissioner for France; Ralph J. Preston, delegate commissioner; W. S. Patten, director of the service for military affairs; H. O. Beatty, director general; Alexander Smith, food commissioner; Livingston Farrand, former president of the Univer-

sity of Colorado, now president of the American Commission of the Rockefeller Foundation for the Control of Tuberculosis, etc. All the members of the board of the Society of Men of Letters assisted at this reception. The president, M. Georges Lecomte, welcomed the delegates and spoke of the reasons why French literature must be profoundly sympathetic with the work that is being done by the American Red Cross and give full recognition to the devoted men and the generous donors whose valuable cooperation has made it possible to carry on this work successfully. Then, after stating that the delegation from the Red Cross was composed of representatives of the highest American individuality, prominent physicians and surgeons, professors from the most celebrated universities of the United States, and social organizers and workers, he expressed the hope that the bonds of literature and science uniting the intellectuals of the two republics would lead to still closer union between the Americans and the French. Homer Folks, in replying, gave expression to the sentiments of esteem and affectionate admiration with which the American Red Cross associates its efforts with those of France in this time of great trial.

LONDON LETTER

LONDON, Feb. 26, 1918.

Organized German Brutality to Prisoners

A government report on the treatment of British prisoners of war during their transport from France and Belgium to Germany during the period from August to December, 1914, has just been published. It is based on the carefully collected evidence of forty-eight officers and seventy-seven noncommissioned officers and men. In almost every case the treatment of the British prisoners was barbarous, but the most striking fact is that this treatment was deliberate and carried out by order. The few instances of humanity shown "force into all the greater relief . . . a remarkable record of organized cruelty." For that cruelty the German Imperial Government was responsible. The principal means used were: 1. Careful neglect to give medical treatment to wounded prisoners (during journeys that lasted from two to five days). 2. Overcrowding of officers and men—wounded and unwounded—usually in uncleansed horse and cattle trucks. 3. Nonprovision of sanitary accommodation. Elementary requirements of decency and cleanliness were constantly refused. 4. Deliberate deprivation of food and water. The German Red Cross nurses habitually declined to supply the British prisoners. 5. Differential treatment of British and French prisoners with the object of degrading the British. At all stages of the journey British prisoners were displayed to the execration of the crowd. There are many examples of other acts of brutality, the commonest being the striking of and the spitting on officers and men and the theft of their belongings. One officer was compelled by a German nurse to walk naked from his stretcher to the station buffet (used as a hospital) a distance of 100 yards, which he did after a sentry called up by the nurse had forcibly removed his only covering, a blanket, and had given him "one or two gentle prods" with his bayonet.

The behavior of the civilians was worse even than that of the military. The report summarizing, with much moderation, an overwhelming mass of evidence, says: "On all journeys without exception, whenever the train stopped—and halts were always long and frequent—a dense and highly hostile crowd was found on the platform, who surged round the carriages and trucks containing prisoners, threatening them with knives and revolvers and insulting them with the grossest of abuse. German officers often took an active part on these occasions." One scene in particular, at Aachen, September 2, is described by several witnesses. Here a mob of drunken Uhlans and railway employees was deliberately incited against the prisoners by a German colonel. Their behavior became so threatening that the train was saved from being rushed by the crowd only by being moved out of the station. Well dressed women were constantly prominent in these scenes, and often at wayside stations, rows of schoolchildren would be found drawn up, chanting choruses of abuse. In the long record of cruelty toward suffering and defenseless men, one kind of exception stands out. In several cases, though by no means in all, the guards in charge of the prisoners showed them what kindness they could, usually by procuring food and water. In some instances the food thus smuggled in was all that the prisoners got. The men who did these acts were nearly all in humble positions.

A party of British wounded was gathered at Mons and taken to the station where German cavalry, just arrived, were drawn up in two lines. The wounded were made to march through the lines, and were subjected to gross insults and ill treatment. Curses were hurled at them, the Germans spat on and kicked them. The men were struck with sabers and bayonets. Many men with crutches had these kicked from under their arms, and when they fell, the crutches were used to beat them. German officers with their men encouraged them, even to the extent of cursing them in German and English and in taking part in these cowardly assaults. In another case German soldiers prodded with bayonets and urinated on prisoners of the medical corps.

To physicians the cruelty of the German Red Cross nurses will be particularly revolting. At every railway station there was an elaborate installation of food and drink and medical appliances presided over by women wearing the Red Cross uniform. These showered attention on the German wounded, and would give food and drink to the French prisoners. For the British they had nothing but foul abuse or worse. "We saw some German Red Cross nurses," says one prisoner; "the only thing I remember about them is that some of them spat in our faces." When asked by a wounded officer for a glass of water one of these "ladies" burst out laughing and said, "Nothing for you English." They would show food to the starving prisoners and then remove it, calling the attention of the crowd and observing that it was "not for the swine." They would bring water and soup in cans and pour it out on the platform in front of the Englishmen. The women were extraordinarily venomous in preventing anything from reaching the prisoners, and their display of spite, their heartless cruelty, their profusion of gross insults were barbarous beyond all words. One officer tells how a woman of the Red Cross brought him a glass of water, spitting in it first. On rare occasions it would happen that a German officer would order one of these women to bring something for the prisoners, which she would do most unwillingly. At Coblenz a Red Cross woman, deceived by his red trousers, given him at a French hospital, which he happened to be wearing, handed a British officer a sandwich. She soon discovered her mistake and was careful to warn her companions. This persistent degradation of the Red Cross, universal emblem of charity in warfare, caused the deepest possible impression on the British prisoners.

It must be borne in mind that all this occurred early in the war, and has been reported only now because the evidence could not be taken until the prisoners had returned home. Since that time the treatment of British prisoners in Germany, though leaving much to be desired, has improved, for a very good reason. At the time of the atrocities the Germans were winning and did not contemplate the prospect that the British would have in their hands more prisoners than they were able to take from "the contemptible little army."

The Health of the Troops

In speaking on the army estimates in the House of Commons, Mr. Macpherson, undersecretary for war, gave some astounding figures on the purchases during 1917. Among the medical ones were 67,000,000 bandages, 2,000,000 ounces of quinin, 1,500,000 doses of antitoxin, and 4,700,000 pounds of cotton. He paid a tribute to the devotion of the Medical Corps. The very large number of casualties in this branch of the service in the commissioned ranks showed that it did not shirk its responsibilities or dangers. In the Napoleonic wars the percentage of deaths from disease was 97, and from death on the battlefield, 3. Even as late as the South African campaign there were 67,000 cases of disease admitted to hospital and over 8,000 deaths. Four times as many men died from disease in South Africa as there were cases in France up to the beginning of November last. Although, in a stationary army, epidemics of disease are most liable to break out, skill and medical science, care and forethought have made the incidence of disease in the British forces in France less than in the history of any other army in the world. In other theaters of war, such as Saloniki, conditions are not so satisfactory. In Macedonia in summer the climate is one of the most pestilential in the world, and malaria there is of the most malignant type. But the results of the hygienic measures taken have been remarkable. The amount of sickness in the Saloniki army in 1917 was reduced to two thirds of what it was in 1916, and the death rate to one third of that in 1916. The success and gallantry of the Army Medical Service has given it a place in the army which it has never held before. It has now been arranged that the term Lieutenant-General and Major-General shall be applicable to a surgeon serving with the forces. To no one should greater credit for the success of this branch of the service be given than to Sir Alfred Keogh.

Infant Mortality During the War

Contrary to what might be expected, infant mortality during the war has diminished. In the year 1914, which may be regarded as prewar, the rate for England and Wales was 105 deaths under 1 year per thousand births. In 1915 the rate rose to 110, which was probably due to the dislocation of habits produced by the war. But this rise was followed in 1916 by a fall to 91, the lowest figure ever recorded, the nearest approach being 95 in 1912. This remarkably good figure is generally attributed to the prosperity of the working class in consequence of high wages, diminution of employment, and a liberal scale of allowance for the families of soldiers. However, the figure has risen to 97 during 1917. This is probably due principally to some diminution of prosperity in consequence of the constant increasing cost of the necessities of life.

Association News

THE CHICAGO SESSION

Section on Miscellaneous Topics to Consider Reeducation and Rehabilitation of Disabled Soldiers

At its recent meeting the Council on Scientific Assembly arranged for meetings of the Section on Miscellaneous Topics, the subject to be taken up being the reeducation and rehabilitation of the disabled soldiers. Major Frank Billings, head of this division in the Surgeon-General's Office, has accepted the chairmanship of the section. The subject is one of great importance, especially to medical men. Further announcement will be made later.

Special General Meeting

In addition to the patriotic meeting which will be held on Thursday evening, June 13, and which will be addressed by men prominent in public affairs, there will also be a general meeting on Wednesday evening, June 12, at which eminent physicians who have been active in the medical military service of our nation and its allies will take part.

Section Meeting Places

The tentative arrangements for places of meeting are as follows:

SECTION ON PRACTICE OF MEDICINE.—Banquet Room, Hotel Morrison.

SECTIONS ON OPHTHALMOLOGY AND ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY.—Grand Ball Room and Red Room, respectively, Hotel La Salle.

SECTIONS ON NERVOUS AND MENTAL DISEASES AND ON DERMATOLOGY.—Ball Room and English Room, respectively, Blackstone Hotel.

The remaining Sections will be grouped, meeting in the Auditorium Theater, the Auditorium Hotel and the Congress Hotel. The theater will house in its main auditorium, the SECTION ON SURGERY, GENERAL AND ABDOMINAL, and in two smaller halls, the SECTIONS ON GENITO-URINARY DISEASES and on GASTRO-ENTEROLOGY AND PROCTOLOGY.

In the Auditorium Hotel, the Ball Room will be the meeting place of the SECTION ON PATHOLOGY AND PHYSIOLOGY, the Ladies' Parlor the meeting place of the SECTION ON PHARMACOLOGY AND THERAPEUTICS, and the SECTION ON PREVENTIVE MEDICINE AND PUBLIC HEALTH will meet in the banquet hall.

In the Congress Hotel, the Elizabethan Room will be the meeting place of the SECTION ON ORTHOPEDIC SURGERY and the Gold Room, the SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY; the Florentine Room, the SECTION ON DISEASES OF CHILDREN, and the Green Room, the SECTION ON STOMATOLOGY.

The Hotel Sherman will be the general headquarters where will be housed the REGISTRATION BUREAU, the INFORMATION BUREAU, the AMERICAN MEDICAL ASSOCIATION BRANCH POST-OFFICE, as well as the SCIENTIFIC AND COMMERCIAL EXHIBITS.

In next week's issue the accommodations offered by these and the other hotels of Chicago for those who attend the annual session will be announced.

Marriages

MARY HUNTTING ROBINSON, M.D., late of Hackett Medical College, Canton, China, to Mr. Henry L. Lechtrecker of Rockville Center, Long Island, N. Y., at Ithaca, N. Y., January 1.

LIEUT. JACOB RALPH BROBST, M. R. C., U. S. Army, Bloomsburg, Pa., on duty at Camp Devens, Ayer, Mass., to Miss Grace Zerher of Bloomsburg, Pa., at Ayer, Mass, February 27.

LIEUT. MILTON VALENTINE MILLER, M. C., N. A., Columbia, Pa., of the One Hundred and Eighth Machine Gun Battalion, to Miss Claire Richards of Philadelphia, February 19.

WILLIAM FRANKLIN COBURN, M.D., Rhinebeck, N. Y., to Miss Nora Caroline Heinke of Bremen, Ind., March 1.

SAMUEL MATHEWSON D. MARSHALL, M.D., to Miss Ruth Heisler, both of Milford, Del., February 28.

WILLIAM ARTHUR STROLE, M.D., Norfolk, Va., to Miss Marie Kelly of Baltimore, February 27.

EARLE AUGUSTUS MARTIN, M.D., to Miss Helen M. Wilmer, both of Cincinnati, March 6.

JAMES CHASEY, M.D., to Miss Lillie J. Heidl, both of Long Branch, N. J., February 24.

Deaths

Richard Hunt Brown, M.D., Chicago; College of Physicians and Surgeons, Chicago, 1891; aged 55; a Fellow of the American Medical Association; associate professor of clinical laryngology, rhinology and otology in his alma mater; attending surgeon to the West Side Dispensary, ear, nose and throat department; a specialist on diseases of the ear, nose and throat; formerly professor of toxicology and materia medica in Northwestern College of Pharmacy; fell unconscious afterward swimming in the Central Y. M. C. A. pool, March 12, and died shortly afterward, from heart disease, it is believed.

Com. Remus Charles Persons, Medical Director, U. S. Navy (retired), Washington, D. C., New York University, New York City, 1872; aged 67; a Fellow of the American Medical Association; entered the Medical Corps of the Navy, March 5, 1872, and was retired, Dec. 28, 1912; in charge of the Naval Hospital, Cavite, and later ordered to duty on the U. S. S. *Baltimore*, and fleet medical officer of the Asiatic station; after in command of the Naval Hospital at Mare Island, Calif., and at Philadelphia; died in Columbus, Ga., March 3, from cerebral hemorrhage.

Seabury Bowen, M.D., Fall River, Mass.; Bellevue Hospital Medical College, 1867; aged 77; a member of the Massachusetts Medical Society; formerly corresponding secretary for the Massachusetts State Board of Health; city physician of Fall River from 1871 to 1875; a trustee of the State Workhouse of Bridgehampton from 1875 to 1882; a member of the staff of the Fall River Union Hospital ever since its establishment; died at his home, March 2, from heart disease.

John George Blake, M.D., Boston; Harvard Medical School, 1861; aged 80; a member of the Massachusetts Medical Society; visiting physician to the Boston City Hospital; consulting physician to Carney and St. Elizabeth's Hospital, and director of the South End National Bank; a surgeon of Volunteers during the Civil War; died at his home, March 4.

William Joseph Gremley Dawson, M.D., Eldridge, Calif.; New York University, New York City, 1867; aged 72; a Fellow of the American Medical Association; superintendent of the California Home for Feebleminded Children since 1902; died at his home, March 4.

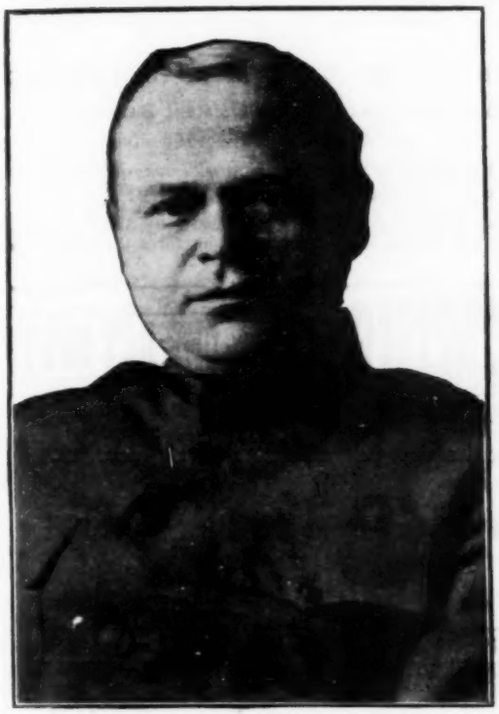
Homer L. Clark, M.D., Washington, Pa.; University of Maryland, Baltimore, 1885; aged 54; a well-known newspaper writer; at one time president of the Washington School Board; is said to have committed suicide by strangulation at the Dixmont (Pa.) Hospital for the Insane, February 25.

Luther Titus Palmquist, M.D., Chicago; Barnes Medical College, St. Louis, 1911; aged 37; formerly a Fellow of the American Medical Association; formerly a practitioner of Sioux City, Iowa; died at his home, March 7, from tuberculosis.

George Earl Hull, M.D., Mantua, Ohio; Cleveland-Pulte Medical College, Cleveland, 1901; aged 39; a member of the Ohio State Medical Association; died in Grace Hospital, Cleveland, March 1, from paralysis.

Walter Alva Mewborn, M.D., Bells, Texas; Vanderbilt University, Nashville, Tenn., 1881; aged 59; formerly a Fellow of the American Medical Association; died at his old home in Macon, Tenn., March 1, from peritonitis associated with carcinoma of the stomach.

Eli Percival Flint, M.D., Rockville, Conn.; Yale University, New Haven, Conn., 1879; aged 68; a Fellow of the American Medical Association, and secretary of the Tolland County Medical Society; health officer for the town of Vernon; died at his home, January 31, from pneumonia.



Died in the Service

CAPT. CLARENCE D. BRADLEY, M.D., M. R. C., U. S. ARMY, 1880-1918

(See The Journal, Feb. 23, 1915, p. 556.)

William Butler Prather, M.D., Seale, Ala.; Atlanta (Ga.) Medical College, 1874; aged 71; formerly a Fellow of the American Medical Association; a member of the Medical Association of the State of Alabama; died at his home, February 19, from cerebral hemorrhage.

Eugene Chase Peck, M.D., Hyde Park, Mass.; University of Vermont, Burlington, 1869; aged 72; formerly a member of the Massachusetts Medical Society; captain of United States Volunteers during the Civil War; died at his home, February 2, from cerebral hemorrhage.

Lieut. Frank Harris Gardner, M.D., M. R. C., U. S. Army, Brooklyn; Jefferson Medical College, 1916; aged 28; on duty at the Government Reservation, Hoboken, N. J.; formerly on duty at Fort Oglethorpe, Ga.; died at the home of his aunt in Brooklyn, February 24, from pneumonia.

Harry Varley Bingham, M.D., Madison, N. J.; New York Homeopathic Medical College, New York City, 1905; aged 41; formerly a member of the staff of the Middletown State (N. Y.) Homeopathic Hospital; died in a sanatorium in Morristown, N. J., February 24.

Ora N. Latham, M.D., Bolivar, N. Y.; University of Maryland, Baltimore, 1882; aged 62; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; died at his home, February 14, from heart disease.

James H. Lampton, M.D., Louisville, Ky.; University of Louisville, Ky., 1865; aged 62; formerly a member of the Kentucky State Medical Association; for many years a practitioner of Springfield, Ky.; died at his home, February 25, from tuberculosis.

Albert Joseph Ainey, M.D., Brooklyn, Pa.; Yale University, New Haven, Conn., 1867; aged 80; formerly a member of the Medical Society of the State of Pennsylvania; a veteran of the Civil War; died at his home, February 22, from cerebral hemorrhage.

William F. Mills, M.D., Worcester, Mass.; Rush Medical College, 1887; aged 61; formerly a practitioner of South Bend, Ind., and physician of St. Joseph County; died in St. Johnsbury, Vt., February 15, from cerebral hemorrhage.

Joseph Francis Gill, M.D., Madison, Wis.; Rush Medical College, 1886; aged 59; formerly a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; died at his home, February 24, from pneumonia.

James Taylor Henry, M.D., Bentonville, Ark.; University of Nashville, Tenn., 1873; aged 70; a Fellow of the American Medical Association; physician and surgeon to the Eagle Lumber Company; died at his home, February 27.

J. P. Sparrow, M.D., Oak Dale, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1891; aged 65; for nearly twenty years a practitioner of Hannibal, Mo.; died at his home, February 23, from pneumonia.

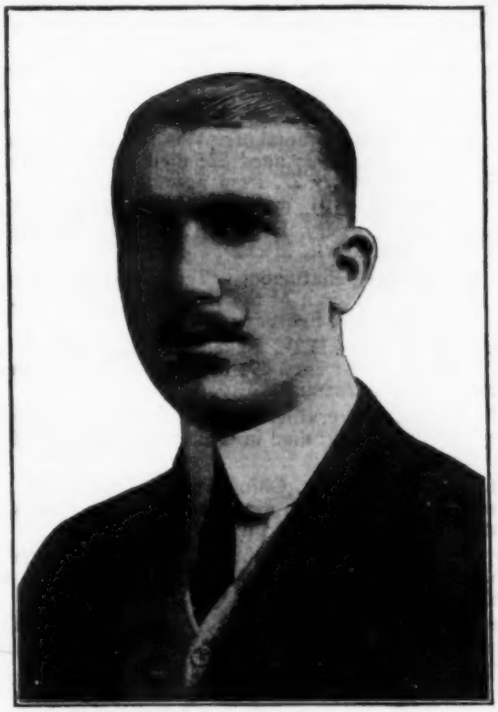
David James Odell Truitt, M.D., Pocomoke City, Md.; University of Maryland, Baltimore, 1857; aged 81; contract surgeon in the Army during the Civil War; died at his home, February 22, from heart disease.

Y. P. Barton, M.D., Cushing, Texas; Memphis (Tenn.) Hospital Medical College, 1903; aged 39; a member of the State Medical Association of Texas; died at his home, about February 20, from septicemia.

John Hartridge Livingston, M.D., Jacksonville, Fla.; University of Maryland, Baltimore, 1878; aged 57; a member of the Florida Medical Association; died at his home, December 22, from cerebral hemorrhage.

Francis Bilderback, M.D., Salem, N. J.; University of Pennsylvania, Philadelphia, 1870; aged 72; a member of the Medical Society of New Jersey; died at his home, February 23, from pneumonia.

Harvey Newton Fox, M.D., Fresno, Calif.; Miami Medical College, Cincinnati, 1866; aged 77; formerly a practitioner of Tipton, Ind.; died at the home of his son in Fresno, from heart disease.



Died in the Service

LIEUT. FRANK HARRIS GARDNER, M.D., M. R. C., U. S. ARMY, 1890-1918

Leonard P. Waterhouse, Spokane, Wash. (license, Washington, 1890); aged 85; a practitioner since 1855; first coroner of Spokane County, Wash.; also a druggist; died at his home, February 28.

Celia Williams Taylor Goodman, M.D., San Diego, Calif.; University of Michigan, Ann Arbor, 1880; aged 58; a Fellow of the American Medical Association; died at her home, January 27, from erysipelas.

Elmer William Reinhart, M.D., Muskegon, Mich.; Starling Medical College, Columbus, Ohio, 1884; aged 55; also a graduate in theology; died at his home, February 10, from cerebral hemorrhage.

Alfred M. Townsend, M.D., Kenoma, Mo.; Ensworth Medical College, St. Joseph, 1893; formerly a member of the Missouri State Medical Association; died at his home, February 24.

Horace Ladd, M.D., Philadelphia; Jefferson Medical College, 1848; formerly a member of the Medical Society of the State of Pennsylvania; aged 91; died at his home, February 24.

John Hutchens, M.D., Cheshire, N. Y.; University of Buffalo, N. Y., 1871; aged 68; a member of the Medical Society of the State of New York; died at his home, February 23.

William Bixby Hopkins, M.D., Cumberland, Wis.; Bowdoin Medical School, Brunswick, Me., 1881; aged 63; a Fellow of the American Medical Association; died at his home, February 11.

Americus Miesse, M.D., Lima, Ohio; Cincinnati College of Medicine and Surgery, 1871; aged 69; died at the home of his daughter in Sidney, Ohio, February 26, from cerebral hemorrhage.

Peter Livy Schuyler, M.D., Glendale, Calif.; University of Michigan, Ann Arbor, 1862; aged 87; for thirty-five years a practitioner of Evansville, Ind.; died at his home, February 23.

Azuba Doty King, M.D., Des Moines, Iowa; State University of Iowa, Iowa City, 1876; aged 81; a member of the Iowa State Medical Society; died at her home, March 8.

Benjamin Franklin Hamilton, M.D., Roseville, Ill.; Medical College of Ohio, Cincinnati, 1867; aged 79; died in the Burlington Hospital, December 18, from senile debility.

Howard Fackenthal, M.D., Easton, Pa.; University of Pennsylvania, Philadelphia, 1876; aged 64; died in his apartments in Easton, February 25, from heart disease.

Louis Jeschinsky, M.D., Mount Vernon, N. Y.; University of Halle, Germany, 1869; aged 74; died in the Westchester County Hospital, East View, N. Y., February 21.

Peter Bakke, M.D., Grantsburg, Wis.; University of Minnesota, Minneapolis, 1892; aged 52; died in St. Luke's Hospital, St. Paul, February 27, from heart disease.

Irving W. Norris, M.D., Corunna, Mich.; Michigan College of Medicine and Surgery, Detroit, 1901; aged 52; died suddenly at Sault Ste. Marie, Mich., February 26.

Jesse C. Eldridge, Chattanooga, Tenn. (license, Tennessee, 1889); aged 71; a veteran of the Civil War; died in a sanatorium in Chattanooga, February 26.

Leonard F. Henley, M.D., Lakeland, Fla.; Atlanta (Ga.) Medical College, 1888; aged 69; died at his home, December 27, from pernicious anemia.

W. P. Harris, Centerville, Ohio (license, Ohio, years of practice, 1896); aged 80; died in Centerville, January 30, from cerebral hemorrhage.

Noah Elliott, Columbus, Ohio (license, Ohio, 1896); aged 92; a colored practitioner; died at his home, February 27, from senile debility.

Henry S. Willard, M.D., Manhattan, Kan.; University Medical College, Kansas City, Mo., 1892; aged 50; died at his home, February 23.

Giuseppe Ferro, M.D., New York City; University of Palermo, Sicily, 1876; aged 69; died at his home, February 10, from myocarditis.

William Henry Gifford, M.D., Cleveland; Hahnemann Medical College, 1891; aged 48; died at his home, February 20, from pneumonia.

Lancaster F. Scott, M.D., Chicago; Bellevue Hospital Medical College, 1882; aged 67; died at his home, March 4, from gastric ulcer.

Fletcher F. Anderson, M.D., Atlanta, Ga.; Hospital Medical College, Ecletic, 1909; aged 52; died at his home, February 22.

Leonard Kelly, M.D., Olyphant, Pa.; Bellevue Hospital Medical College, 1866; aged 75; died at his home, February 27.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

JOHN F. AND KATE A. BRAUN—QUACKS

A Brief History of Some Persistent Fakers of the "Divine Healer" Type

From the publishers of the *News-Times* of Goshen, Ind., THE JOURNAL received the following inquiry:

"We have received from 'The Christian Health Institute,' of Peru, Ind., a 25-inch display advertisement, setting forth the healing powers

COMING — FOR ONE DAY ONLY

FREE TREATMENT

NO DRUGS NO RUBBING NO KNIFE

Prof. Kate A. Braun, "Herself"

Prof. Jno. F. Braun, "Himself"

The People You Hear So Much About. Meet Them Face to Face

Both Cured at Same Time

At _____ One Day Only, Rain or Shine

Greatly reduced reproduction of one side of a placard used by the Brauns in 1908. The original measured 24 inches by 18 inches. At that time the Brauns were using their own names.

of one 'Bonita,' an individual who claims an ability to cure a wide range of bodily ills without the use of medicine or instruments.

"'Bonita' is scheduled to appear in Goshen on February 21, but as we have for several years past maintained an attitude of hostility toward fake medical practitioners, when we know them to be such, the advertisement of this outfit will not appear in our paper, even though we hold a check to cover cost of same, unless you are prepared to give it a clean bill of health.

"If you have any information concerning 'Bonita' please let us have it."

As the Propaganda Department files failed to show any record either of the "Christian Health Institute" or of "Bonita," an investigation was made. As a result, it appears that "Bonita" and the "Christian Health Institute" are the latest recrudescence of the John F. Braun's brand of quackery.

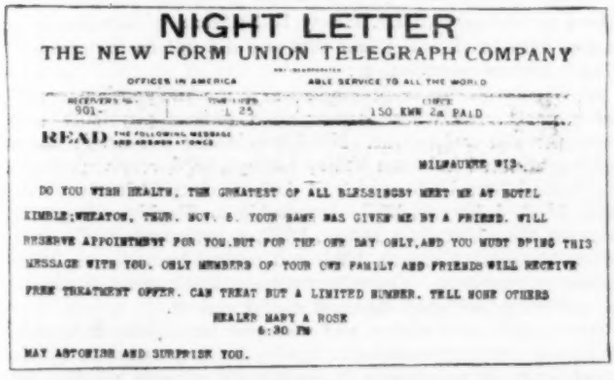
PROFS. BRAUN—HIMSELF AND HERSELF

The history of Braun and his wife, Kate A. Braun, makes an interesting chapter in the annals of quackdom. In 1898, Braun who was then a photographer at Red Bud, Ill., took a "course" in magnetic healing. Soon after embarking on this

enterprise the Illinois State Board of Health issued an authorization for his prosecution and for a while Braun discontinued his "practice." Later he seems to have practiced in Sparta and then in Nashville, Ill. In August, 1903, he was prosecuted at Nashville and was fined $100 and costs and, on his failure to pay, was sent to jail. He appealed but later paid his fine before the case came to the higher court. In March, 1904, the federal authorities began actions against Braun for sending obscene letters through the mails. He was eventually fined $500 and, on failing to pay, was confined in the St. Clair County Jail for six months. In October, 1905, he appeared at Nokomis and Hillsboro, Ill., where suit was promptly begun against him by the State Board of Health and he was again sent to jail. In January, 1906, he was sentenced to the county jail at Hillsboro, Ill., for thirty days for violating the Medical Practice Act. All this time Braun and his wife operated chiefly under their own names as "Prof. John F. Braun, Himself and Prof. Kate A. Braun, Herself."

In October, 1909, the federal government issued a fraud order against the Brauns (who were then working from Bloomington, Ill., Indianapolis and Greenfield, Ind.) for obtaining money through the mails by means of false and fraudulent methods. As recorded in the memorandum to the Postmaster-General, the scheme consisted in advertising and selling an alleged treatment for the cure of all diseases without the use of drugs, surgery or even seeing the patient. The "treatment" was claimed to be by telepathy. Investigation proved that the "scheme was devised and operated for the sole purpose of defrauding the sick and afflicted." At the same time the Brauns were indicted on criminal charges and Braun was sentenced to a year and a day in the Leavenworth Penitentiary. The case against Mrs. Braun was *nolle prossed* because of the large number of children she had.

After getting out of prison, Braun seems to have done business for a while under the alias "Rev. D. R. Schiller" with headquarters at Rockford, Ill. In January, 1913, Schiller was mobbed at Jerseyville, Ill., because, after advertising that his "treatments" were "free" he refused to treat two patients who lacked money. The papers, in reporting the



NIGHT LETTER

THE NEW FORM UNION TELEGRAPH COMPANY

OFFICES IN AMERICA — ABLE SERVICE TO ALL THE WORLD

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READ

MILWAUKEE WIS.

DO YOU WISH HEALTH, THE GREATEST OF ALL BLESSINGS? MEET ME AT HOTEL KIMBLE;WHEATON, THUR. NOV. 6. YOUR NAME WAS GIVEN ME BY A FRIEND. WILL RESERVE APPOINTMENT FOR YOU.BUT FOR THE ONE DAY ONLY,AND YOU MUST BRING THIS MESSAGE WITH YOU. ONLY MEMBERS OF YOUR OWN FAMILY AND FRIENDS WILL RECEIVE FREE TREATMENT OFFER. CAN TREAT BUT A LIMITED NUMBER. TELL SOME OTHERS

HEALER MARY A ROSE
6:30 PM

MAY ASTONISH AND SURPRISE YOU.

One scheme used by the Brauns for getting victims was to send out an imitation telegram to individuals whose names they had obtained offering free treatment; needless to say the "free treatment" cost money. Above is a miniature reproduction of one of the fake telegrams.

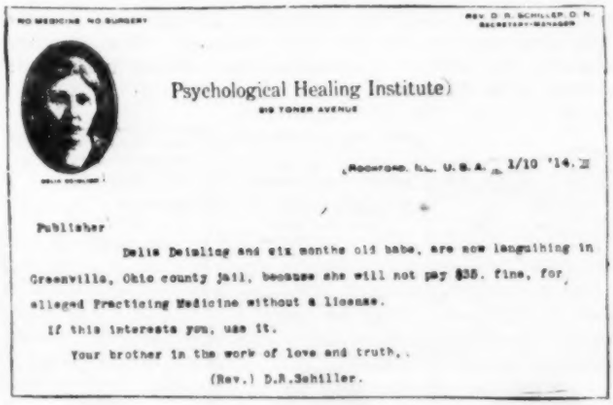
case at the time, said that Schiller had sold over a hundred "blessed" handkerchiefs to patients in Elgin, Ill. The handkerchiefs were to be placed on the affected portions of the anatomy and were supposed to effect a cure!

In March, 1913, Braun, as "Schiller," was on trial at Marion, Iowa, on the charge of violating the Medical Practice Act. The jury quickly brought in a verdict of guilty.

In June, 1913, the Indiana papers recorded the arrest of "Schiller" at Greencastle, Ind., where he was doing a thriving business. He was not only fined but also was made to refund all of the money he had taken from people of that community.

In November, 1913, we find "Schiller" pleading guilty to the charge of practicing medicine without a license in Ionia, Mich. He was placed on probation for two years after promising to give up quackery and return to his home in Rockford, Ill.

In January, 1914, Kate A. Braun appears in the lime-light again under one of her numerous aliases, this time as "Delia Deimling." She was arrested at Greenville, Ohio, on the charge of violating the Medical Practice Act. The newspapers said that "Delia Deimling," while advertising that she would take nothing for her services until a cure had been effected, had been taking money and that some of her dupes were responsible for her arrest. She was sent to the local county jail in default of a $300 bond for her appearance. This was on Jan. 9, 1914. On January 10, Braun, under his alias "Rev. D. R. Schiller," was sending out the following letter to such newspaper publishers as had participated in the profits of the Braun quackery:



NO MEDICINE NO SURGERY

Rev. D. R. SCHILLER, D. R.
SECRETARY-MANAGER

Psychological Healing Institute)
310 TONER AVENUE

Rockford, Ill., U. S. A., 1/10 '14.

Publisher

Delia Deimling and six months old babe, are now languishing in Greenville, Ohio county jail, because she will not pay $35. fine, for alleged Practicing Medicine without a license.

If this interests you, use it.

Your brother in the work of love and truth,

(Rev.) D.R.Schiller.

In June, 1914, the federal government again intervened and extended the fraud order that had been issued in 1909 to cover the new names under which John F. Braun and his wife, Kate A. Braun, were then operating from Rockford, Ill. Some of these names were (1) "The Psychological Healing Institute," (2) "Rev. D. R. Schiller," (3) "Hulda De Muth," (4) "Delia Deimling" and (5) "Madame De Muth Deimling."

On Nov. 3, 1914, the Rockford, Ill., *Star* had an item about "D. R. Schiller, the Toner Street healer," to whom it referred as "the manufacturer of divine balm and blessed handkerchiefs." It seems that Schiller had come back to Rockford after a trip to Janesville with a supply of whiskey in his pockets and a not insignificant amount of the same substance in his anatomy. After supper he started to "clean out" a local barber shop against whose owner he had long nursed a grudge. The cleaning out process was accomplished by means of bricks and a revolver. Braun ("Schiller") was lodged in jail and before he had a chance to get out was taken in charge by the United States authorities who had indicted him and his wife on charges of fraud.

At the trial of the Brauns before Judge Landis a touch of lightness was given by the evidence of a farmer who wanted to get into the "healing business" and had applied to the Brauns for a job. Braun, it seems, insisted that his assistant should have a beard, an appendage to which the farmer's "best girl" objected. The district attorney presented in evidence a letter from Braun to the would-be assistant, reading:

"Yes, by all means, raise that Van Dyke for I would not think of placing you in office without it. It will make you look ten years older. That counts for much in this business. Never mind what your girl says about it, for you must choose between the girl and the job. The more you force it the sooner the position will be open to you. Mioz wants to come back but I will stick to the proposition I made to you, provided your physiognomy will be in proper shape to look the patients in the eye and see how much money they have in their pockets. Yours,

REV. DR. SCHILLER, HIMSELF."

One of the witnesses who appeared for the government was a merchant from Appleton, Wis., who testified that he had paid Braun $10 for an "absent treatment" and a "blessed handkerchief." After discovering that Braun was a faker he refused to accept the handkerchief and demanded that his money be refunded. Braun very pertinently replied, by mail:

"If I should return your money, every cheap screw in the country would demand a refund."

As a result of this trial, John F. Braun on Nov. 12, 1914, was sentenced to the federal penitentiary for four years, in spite of the plea of his attorney, George W. Popham of Chicago, that Braun had admitted his guilt and had promised on his release to seek legitimate means of a livelihood. Kate A. Braun was acquitted on the grounds that she had been influenced and coerced by Braun and also because she was the mother of ten children.

In October, 1916, the Ohio newspapers reported that "Mary A. Rose" of Peru, Ind., was arrested in Springfield, Ohio, charged with practicing medicine without a license. "Mary A. Rose" was one more alias of Kate A. Braun. She pleaded not guilty and was released on $100 bail. When the case was called Mrs. Braun failed to appear and her bond was forfeited.

Braun was released from the United States Penitentiary at Leavenworth, Dec. 10, 1917, after serving only slightly more than three of his four years sentence. Now, in 1918, it seems that Braun is operating his schemes under still another name—"Bonita."

Noted Healer, Apparently Works Miracles Before Multitudes.
HER WORK IS LARGELY A LABOR OF LOVE.
TREATMENT FREE.
Delia Deimling
THROWS HER OLD, CROOKED CANE AWAY.
One Ministration by Delia Deimling Does the Work.
Hulda DeMuth.
THROWS HER OLD CROOKED CANE AWAY.
One Ministration by Hulda DeMuth Does the Work.
MARY A. ROSE
THROWS HER OLD, CROOKED CANE AWAY
One Ministration by Mary A. Rose Does the Work.
The Mary A. Rose Healing Institute
Milwaukee, Wis.

Photographic reproductions (reduced) of three advertisements issued by Braun advertising Kate A. Braun under some of her aliases. As "Delia Deimling" the Brauns operated from Rockford, Ill., under the name of "Delia Deimling Divine Healing Institute"; from Beloit, Wis., they worked as the "Hulda De Muth Psychological Healing Institute," and from Milwaukee they conducted the "Mary A. Rose Healing Institute." Mrs. Braun, it will be noticed, went by all three of these names —and several others.

It is pertinent to add that the *News-Times* of Goshen, Ind., after hearing from the Propaganda Department, refused the advertisement of "Bonita." The people of Goshen and vicinity are to be congratulated on having a newspaper that holds the public health in higher esteem than the dollars of the quack.

Rats.—As a not inconsiderable feature of war economy and for the saving of food products especially, the Department of Agriculture calls attention to the loss of foodstuffs through the agency of rats amounting, as estimated, to over $200,000,000 annually. The systematic destruction of rats is urged on every one, and in a campaign for this purpose small posters are being distributed by the department setting forth the loss of food through rats and offering to supply practical methods for their destruction.

Correspondence

"SWOBODA'S 'CONSCIOUS EVOLUTION'"

To the Editor:—In the history of medicine and surgery, especially of the Egyptians and the old Hellada, exercise or physical culture went hand in hand with the healing arts for centuries up to the present so-called modern education. As believers in healthy, strong, proper living and of all systemic efforts of development of our bodies and minds, you cannot blame us if we always welcome your articles in the Propaganda for Reform department justly attacking quackery, pseudo-science, *et tuti quanti.* In the last issue you gave us the best in regard to the humbugs in advertising of so-called systems of gymnastics, home physical culture, etc. Swoboda's "Conscious Evolution," his daring and all his nonsense with all the refinement for selling was known to us for years and since 1890 as he started to "humbug" the others in Omaha, as the active member of our gymnastic association of Sokols. He soon found out that he could not stay with us and went finally to Chicago, Washington and New York. Right here he connected his advice of a medical character, on the mail-order plan, with a "Course" or six lessons of simple exercise, free calisthenics, as he learned them in our gymnasiums or he is selling, for $20, our groups of selected exercises which have been used in our schools since 1862 as his "original wonderful discovery." We have exposed this and similar concerns in our paper many times and congratulate you on your article in the same direction. Will you be kind enough to allow us to translate the article on this Swoboda business, which was accepted even in the advertising columns of the best of our magazines, not only to the detriment of the pocketbooks of their readers, but also with all the dangers of quackery to their health.

DR. J. RUDIS-JICINSKY.
Editor, *Sokol Americky*, Chicago.

HENRY BACHMAN STEHMAN

To the Editor:—In THE JOURNAL, February 23, you published an obituary of Dr. Henry B. Stehman of Los Angeles. It was very brief, and I fear that you did not do him justice. May I add an appreciation:

Dr. Henry Bachman Stehman was a modest gentleman and yet a great man whose career as a citizen, physician and philanthropist was unique. His life calendar was brief: Born 1852; graduated Lebanon Valley College, 1873, receiving there his A.M. later; Universities of Leipzig and Brussels, 1873-1875; M.D., Jefferson, 1877. Internship in Blockley Hospital; married Miss Elizabeth Miller, 1881; superintendent, Presbyterian Hospital, Chicago, 1884, and retired by sickness, 1899. Moved to Pasadena. There he worked, handicapped by physical suffering, and died its most useful citizen.

He was a man of vision, and whatever he undertook he did. He had a constructive mind, a genius for organization, which found scope in two hospitals, in a great church building in Pasadena, and finally in a monument to his zeal for service, La Vina, a sanatorium for the tuberculous.

As a hospital manager he was superb, and the Presbyterian received through him many gifts—endowments of beds, rooms and wards, and bequests of large amount.

He chiefly designed the interiors of the numerous buildings of the Pasadena Hospital, and assisted in their construction. He sought and secured large gifts to this hospital.

La Vina was his greatest work. On a farm near Pasadena have arisen some eighteen buildings for 100 patients. The farm and all the buildings were the willing gift of those who believed in the work and in him.

It was his ambition to make a haven for at least a few of the many consumptives who walk the streets as long as they can—and walk in loneliness. And this he nobly did.

For ten years, amid an exacting practice, he gave himself to this service as a labor of love, refusing all material rewards —even declining gifts for his personal comfort.

For eleven years he was a successful teacher in Rush College, finally as assistant professor of gynecology. He was an expert diagnostician and a resourceful surgeon. He had the fine art of helping the sick without irritating them.

He had a genius for raising money for a good cause, and did it without annoying people. He seldom asked for money; rather his friends enthused with him over what money could do for a good cause.

His religion he took more seriously and with less parade than any other man I ever knew. His relations with others were kindly, unselfish and helpful. His purposes were too serious for him to waste energy over trifles (which he took rather humorously). The strength of his unobtrusive personality, like a rich perfume, touched the spirits of those about him for their comfort and strength.

His life was consecrated to the weal of the sick and needy of all classes, of all religions and no religion. He respected the sincere opinions of others; he was beloved of all who knew him and of him; and in his final agony he had the hopes and prayers of the whole community.

NORMAN BRIDGE, M.D., Pasadena, Calif.

A PLEA FOR A RATIONAL SYSTEM OF INSTRUCTION IN ANATOMY

To the Editor:—During the past three months, while conducting a course for military surgeons at the Post-Graduate Medical School and Hospital dealing with the surgery of nerves and tendons, I was struck by the students' ignorance of the simplest elements of anatomy. Their ignorance was all the more surprising because they represented an unusually intelligent, alert group of men, many of whom were surgeons of standing. It was interesting to see how they welcomed a chance to study anatomy when presented in a simple form, and how easily they acquired a practical working knowledge of all the important tendons and peripheral nerves during the two weeks of the course. On talking the matter over with them I came to the conclusion that the method of teaching anatomy current in our medical schools is to a large extent responsible for their anatomic ignorance. As one man put it, "I was compelled to digest 1,500 pages of Gray's Anatomy in eight months, and my anatomic digestion has suffered ever since."

The teaching of anatomy in the medical school should, to my mind, not rest in the hands of a specialist versed only in the science of anatomy; but the teacher should be a man who, in addition to his anatomic knowledge, is skilled in the application of anatomic data to practical medical problems. The medical student, with rare exceptions, is to be trained not as an anatomist but as a physician, and only the physician can have a sufficiently broad point of view to realize which anatomic facts are essential and which are to be considered encumbrances. For the anatomist, particularly one interested in the comparative study of vertebrates, each detail of the skull bones has an intense significance. A scientist of this type ought to be associated with every medical school as a leader of research. For the student, however, the exact configuration of the bones of the skull is as nonessential as a knowledge of the sutures of the bones of the turtle's skull. Emphasis of a nonessential of this type serves to distract his attention from those important data which he should have at his fingers' tips during his entire medical life. Because of this lack of emphasis, all anatomy becomes jumbled up in his mind, and he forgets the important together with the unimportant.

As one glances at the huge volumes which at present represent our knowledge of human anatomy—the detailed system of Poirier and Charpy, the eight volume edition of Rauber and Kopsch, or even the somewhat more modest English and American anatomies—one must realize that only by the most careful and critical sifting can the essentials be presented in cogent, logical form to the medical student. Instead of this, however, we use Gray as a textbook, and our best quiz masters stimulate a false pride among their students in making them vie with one another in their ability to recite the huge volume by heart. Naturally, knowledge rammed down by such a method is bound to produce the indigestion of which my postgraduate student complained.

Heterodox as these views may sound to some, they will, I feel sure, find response not only among the afflicted medical students but also among teachers of anatomy who, largely because of a lack of a suitable textbook, find it difficult to cope with the problem of presenting anatomy in such a way as to make it interesting and assimilable.

It is particularly to these teachers that I appeal, to those men who, appreciating the value of an anatomic knowledge in the accurate practice of medicine, wish to give their students the thorough equipment indispensable for their future work.

Might it not be possible with their cooperation to evolve a textbook of anatomy which should be thorough and yet omit the unimportant, clear and yet not too detailed, a book which the average medical student could absorb fully and retain as a basis for his future diagnostic and therapeutic work? A book of this type should not, of course, attempt to replace the complete system of anatomy, which should be present as a reference work on every student's shelf.

LEO MAYER, A.M., M.D., New York.

CONTRIBUTIONS FOR BELGIAN AND FRENCH PHYSICIANS

To the Editor:—I beg to acknowledge further contributions of money for the aid of the civilian physicians in Belgium and France as they may be able to return to their devastated homes; and also of instruments which will be of great use to them, for they will have absolutely nothing left. The Germans have stolen it all. The door is still open for others to help.

W. W. KEEN, M.D.

1729 Chestnut Street, Philadelphia.

SUBSCRIPTIONS IN CASH

Dr. Sanford Blum, San Francisco	$ 5
Dorchester Medical Club, Dorchester Mass.	10
Lewellys F. Barker Society for the Study of Medicine, Fairmont, W. Va., through Dr. J. W. McDonald	10
Mr. Joseph G. Rosengarten, Philadelphia, a tribute to Madame Depage	100
	$125

INSTRUMENTS

Miss Louise Herring, Philadelphia, a fine medicine case nearly 100 years old; Dr. McDonald Watkins, Natchez, Miss.; Dr. E. F. Meschter, Olean, N. Y.; Dr. Edgar F. Kiser, Indianapolis; Dr. F. B. Fuller, Pawtucket, R. I.; Dr. A. C. Jordan, Pine Bluff, Ark.; Dr. Harold B. Wood, Charleston, W. Va.; Dr. B. G. R. Williams, Paris, Ill.; Dr. W. A. Rowell, Trinity Center, Calif.

In addition to this Messers Charles Lentz & Sons not only have put in order and carefully packed all of the instruments forwarded, but in the last case they contributed a large number of instruments from their own stock.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CLAUDIUS' STAIN FOR PROTOPLASM AND CILIA OF BACTERIA

To the Editor:—In THE JOURNAL, March 2, 1918, p. 661, Abstract 92, mention is made of Claudius' staining technic for bacteria. Can you furnish me with the technic?

Lieut. V. M. JARED, M. R. C., Base Hospital, Fort Riley, Kan.

To the Editor:—I am very much interested in the brief reference on the staining of protoplasm for bacteria, abstracted from *Hospitalstidende*, as given in THE JOURNAL, March 2, 1918, p. 661. As I do not have access to the journal in question, I should be pleased to learn of the details of the method of staining referred to.

HENRY ALBERT, M.D., Iowa City, Iowa.

ANSWER.—The fixation is done by heat in a sterilizer. The flame is lighted after the specimen has been placed in the sterilizer, and the temperature is gradually brought up to 110 C. The specimen is laid on a piece of filter paper, and another is placed over it. The sterilizer must be dry, as any steam would destroy the specimen. The fixation takes about half an hour; the specimen is taken out when 110 C. is

reached. Once cooled, the stain is applied at once. The stain consists of 20 c.c. of a 1 per cent. aqueous solution of chromic acid into which are stirred 0.5 c.c. of freshly prepared anilin water and 10 drops of glacial acetic acid. The anilin water is made by stirring one part of anilin into 25 parts water and filtering through a moist filter. The specimen is placed in the staining fluid, on a glass cuvette with an oval bottom, and the whole is set aside for half an hour at room temperature, and then rinsed with water and dried in the air. The stain on the back of the cover glass is wiped off with a towel. This is easily done if a little anilin is placed on the towel. The specimen is examined with an immersion lens and powerful light and entirely open condenser. These specimens do not keep well, as they grow in time less distinct.

The cultures used must not be over 8 days old; Claudius prefers solidified serum (as for diphtheria) to agar. A small drop of ordinary water is placed on the thin, flamed slide, and an extremely small amount of the material is transferred to the drop of water with the tip of a fine platinum needle, and the whole is stirred well and spread over an area of several centimeters in the center of the slide. When the glass is clean and free from grease, the emulsion of the bacteria lies in a thin, scarcely visible layer wherever it is carried with the needle. The cilia show up distinctly against the glass, which takes a bluish or violet tint. The stain adheres firmly to the glass, forming a colored film on it. This molecular precipitation is the essential element in the technic. Not only the slide itself but also its holder take the stain, so that it looks as if originally stained glass had been used. The stain at first is of the tint of the chromic acid solution, but in the course of five or ten minutes it changes to a smoke color which gradually blends into a bluish black. The bacteria show a gray nucleus, surrounded by the unstained protoplasm, from which project the likewise unstained cilia. The aspect is as different, he says, from the ordinary photomicrograph of a bacterium as the roentgen picture of a hand differs from an ordinary photograph of it. As the strong light from the microscope condenser falls on the unstained parts, the nucleus is seen surrounded with a shining medium, the protoplasm and cilia, which look like the light phenomena, the lines of force, in the electrostatic field of a very high potential. Claudius adds that it is most remarkable how the protoplasm allows the stain to pass through to the nucleus without taking up any of it itself, when even the mirror-smooth glass takes the stain to an intense degree. This technic, he says, has proved invariably successful in his hands, and he has grounds for thinking that it is going to prove useful in other fields of bacteriologic microscopic technic.

SAVING DAYLIGHT

To the Editor:—At the risk of showing what you may consider lamentable ignorance, I wish to have explained the advantages of "Saving Daylight." In THE JOURNAL'S editorial March 2, 1918, you say, "The daylight saving plan has, from a health standpoint, everything in its favor and nothing against it." I have asked a number of our physicians here and they are quite as much in the dark as I am.

M. R. W., Reno, Nev.

ANSWER.—Senator Calder on April 17, 1917, introduced a bill drafted by the National Daylight Saving Association which provides for setting forward the clock by approximately one hour for the whole country during the summer months. The bill was adopted unanimously by the Senate but, due to what the *Survey* has termed "guerrilla methods of committee procedure," it failed in the House. On March 14 of this year the newspapers reported that, after Representative Madden had blocked the passage of the bill, the chairman of the Rules Committee of the House had declared that if further obstructive tactics were used to postpone action on the measure, a special rule would be reported out for its immediate consideration. On March 15 the House passed the bill by a vote of 252 to 40. The House bill differs from the original bill in that the daylight-saving period is extended from five months to seven months. The Senate concurred in the amendment, and on Tuesday, March 19, the amended bill was signed by the President. Under the bill the clocks of the country will be put forward one hour at 2 a. m. on the last Sunday of March of each year and put back one hour at 2 a. m. on the last Sunday in October. The accompanying chart (reproduced from the Chicago *Herald*) shows that one of the two hours of daylight which most people spend in bed during summer months will be made available for use at the other end of the day. When the new law is in force, instead of becoming dark at 7:30 p. m. (clock time), it will not become dark until 8:30 p. m. (clock time). This means that for the majority of city dwellers an extra hour of recreation-time is transferred from artificial light to daylight. This means a saving of illuminants, a widened opportunity for outdoor sports, less eye-strain because of the lessened use of artificial illumination and the by no means negligible advantage, under present conditions, of greater opportunities for work on "war gardens." The daylight saving plan has been adopted by Great Britain, France, Italy, Holland, Denmark, Norway, Sweden, Portugal, Germany and Austria. A social worker in London reports that as a result of the law "in the height of the summer it was thought a Saturday afternoon holiday had been added to each day." Furthermore, the police reports show that the tendency to spend the extra hours out of doors, together with the fact that it is easier to maintain order in daylight, had greatly improved the moral tone of the community. The cities of Cleveland and Detroit, which locally adopted the daylight saving plan by working under Eastern time in place of Central time, are reported to have saved about $200,000 each in the consumption of illuminants. The Cleveland Chamber of Commerce also reported that the change resulted in 2,000 more men playing baseball and 1,000 more persons playing tennis each evening. The daylight saving plan has been strongly supported by leading commercial organizations, by the American Federation of Labor and

When the clock is set ahead, the dark sector will extend from 8:30 p. m. to 5 a. m.

the principle is said to have been endorsed by the President himself more than a year ago. In Germany the illuminating companies have petitioned the government to rescind the law there in force because their incomes have been seriously diminished.

MELUBRIN

To the Editor:—1. What is Melubrin? 2. What is its therapeutic use and dosage? 3. Is there a satisfactory substitute for it?

PAUL D. ESPEY, M.D., Xenia, Ohio.

ANSWER.—1. New and Nonofficial Remedies, 1918, p. 276, states that Melubrin is the sodium salt of 1-phenyl-2,3-dimethyl-5-pyrazolon-4-amino-methan-sulphonic acid and that it is closely related to antipyrin.

2. Melubrin acts as an antipyretic and analgesic. It is said to be useful in painful affections, such as sciatica and other neuralgias, and as an antipyretic in various febrile affections. It is said to have effects similar to salicylates in acute rheumatism. The dose is from 1 to 2 gm. It is claimed that as much as 10 gm. may be given daily.

3. Acetanilid or antipyrin will probably answer all purposes. Sollmann (Manual of Pharmacology, 1917, p. 471), in discussing the "coal-tar antipyretics," says, "Practical experience has shown that acetphenetidin, acetanilid and antipyrin are the most useful representatives of the group, and that all the others may well be spared."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 2. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

COLORADO: Denver, April 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, April 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

HAWAII: Honolulu, May 6. Sec., Dr. G. A. Batten, Box 375, Honolulu.

IDAHO: Pocatello, April 2-3. Sec., Dr. Ray H. Fisher, Rigby.

ILLINOIS: Chicago, March 25-26. Mr. F. C. Dodds, Supt. of Registration, Springfield.

MINNESOTA: Minneapolis, April 2-4. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

MONTANA: Helena, April 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

NEVADA: Carson City, May 6. Sec., Dr. S. L. Lee, Carson City.

NEW MEXICO: Santa Fe, April 8. Sec., Dr. R. K. McClanahan, East Las Vegas.

OKLAHOMA: Oklahoma City, April 9-10. Sec., Dr. J. J. Williams, Weatherford.

RHODE ISLAND: Providence, April 4-5. Sec., Dr. B. U. Richards, State House, Providence.

UTAH: Salt Lake City, April 1-2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

South Carolina June Examination

Dr. A. Earle Boozer, secretary of the State Board of Medical Examiners of South Carolina, reports the written examination held at Columbia, June 12-14, 1917. The examination covered 15 subjects and included 105 questions. An average of 75 per cent. was required to pass. Of the 47 candidates examined, 28, including 1 osteopath, passed, and 19 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Atlanta Medical College	(1915) 76.7; (1917) 75.1, 75.6, 76.1.		
Loyola University	(1916)		75.6
University of the City of New York	(1885)		79.7
Women's Medical College of the N. Y. Infirmary for Women and Children	(1899)		75
Jefferson Medical College	(1917) 80, 82.5 85.7.		
Medical College of the State of South Carolina	(1917) 75, 75, 75.1, 75.1, 76.2, 76.6, 77.5, 77.7, 78.1, 79.4, 80.4, 81.4, 81.6, 84.2, 84.5, 85.9.		
Medical College of Virginia	(1917)		84.2
FAILED			
Birmingham Medical College	(1908) 71.1; (1915)		64.7
Atlanta Medical College	(1914) 69.9; (1915) 64.9; (1917) 70.6, 71.9		
Southern College of Medicine and Surgery	(1914)		68.7
University of Georgia	(1914)		69.2
University of Oklahoma	(1915) 66.7, 66.7		
Medical College of the State of South Carolina	(1917) 70.5, 73		
Meharry Med. Coll.	(1907) 59.4; (1909) 70.1; (1914) *; (1916)		74.9
Memphis Hospital Medical College	(1911)		60
University of Tennessee	(1905)		44.4
Vanderbilt University	(1916)		55.2

* No grade given.

Missouri September Examination

Dr. George H. Jones, secretary of the Missouri State Board of Health, reports the oral and written examination held at Kansas City, Sept. 24-26, 1917. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 20 candidates examined, 16 passed and 4 failed. Ten candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Bennett Medical College	(1915)		80.8
Chicago College of Medicine and Surgery	(1917)		87
Hahnemann Medical Coll. and Hosp. of Chicago	(1916)		85
Northwestern University	(1917) 84.1, 86.9		
Rush Medical College	(1916)		81.1
University of Illinois	(1917)		90.2
University of Kansas	(1917)		84.5
Harvard University	(1917)		92.7
National University of Arts and Sciences	(1917)		78.1
St. Louis College of Physicians and Surgeons	(1910)		75.1
University Medical College of Kansas City	(1913)		75
Meharry Medical College	(1917) 75.1, 75.1		
University of West Tennessee	(1915)		75.1
Vanderbilt University	(1899)		75
FAILED			
Meharry Medical College	(1915) 71.9; (1917) 69.9, 72		
University of West Tennessee	(1915)		69.9

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
George Washington University	(1912)		Dist. Colum.
Howard University	(1910) West Virginia (1915)		Kansas
Jenner Medical College	(1907)		Illinois
Rush Medical College	(1915)		Illinois
University of Kansas	(1916)		Kansas
Eclectic Medical University	(1906)		Kansas
St. Louis University	(1909)		Illinois
Meharry Medical College	(1913) (1916)		Tennessee

Rhode Island September Examination

Dr. Byron U. Richards, secretary of the Rhode Island State Board of Health, reports that 3 candidates were licensed at the special examination held Sept. 26-27, 1917. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Johns Hopkins University	(1916)		88.5
Harvard University	(1915)		87.1
Cornell University	(1915)		91.4

Idaho October Examination

Dr. Charles A. Dettman, secretary of the Idaho State Board of Medical Examinations, reports the written examination held at Pocatello, Oct. 2-4, 1917. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Sixteen candidates were examined, of whom thirteen, including 2 osteopaths, passed, and 3, including 1 osteopath, failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University	(1911)		85
Atlanta College of Physicians and Surgeons	(1910)		81
Chicago College of Medicine and Surgery	(1912)		82
Chicago Homeopathic Medical College	(1904)		80
College of Physicians and Surgeons, Chicago	(1895)		83
Northwestern University	(1898)		85
National University of Arts and Sciences	(1917)		81
Long Island College Hospital	(1899)		80
Western Reserve University	(1917)		86
Chattanooga Medical College	(1906)		75.5
Tennessee Medical College	(1901)		75
FAILED			
Hospital College of Medicine	(1907)		73
Eclectic Medical University	(1917)		69.9

Porto Rico October Examination

Dr. M. Quevedo Baez, secretary of the Board of Medical Examiners of Porto Rico, reports the practical and written examination held at San Juan, Oct. 2, 1917. The examination covered 10 subjects and included 123 questions. An average of 75 per cent. was required to pass. Of the 20 candidates examined, 14 passed and 6 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Leland Stanford Junior University	(1917)		84.7
Chicago College of Medicine and Surgery	(1917)		78.1
Loyola University	(1915) 77; (1916) 77; 1917)		76, 82.8
University of Illinois	(1917)		75
University of Maryland	(1916) 85; (1917)		75 87.4
University of Michigan Medical School	(1917)		81.7
University and Bellevue Hosp. Med. Coll.	(1917)		85.8
Medical College of Virginia	(1917) 81.8, 82.5		
FAILED			
Chicago College of Medicine and Surgery	(1917) 65.7, 68.2		
Loyola University	(1916) 65.8; (1917)		66.2
Physio-Medical College of Indiana	(1908)		55
Meharry Medical College	(1917)		69.6

Connecticut Homeopathic Examination

Dr. Edwin C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports one candidate licensed since Aug. 1, 1917, and also the written examination held at New Haven, Nov. 13, 1917. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. Five candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
N. Y. Homeo. Med. Coll. and Flower Hosp.	(1916) 80; (1917)		90

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Hahnemann Med. Coll. and Hosp. of Chicago	(1906)		Illinois
	(1908)		Mass.
New York Homeo. Med. Coll. and Hospital	(1905)		New York
Hahnemann Med. Coll. and Hosp. Philadelphia	(1886)		Mass.
	(1894)		California

Book Notices

THE ORGANS OF INTERNAL SECRETION: THEIR DISEASES AND THERAPEUTIC APPLICATION. A Book for General Practitioners. By Ivo Geikie Cobb, M.D., M.R.C.S. Cloth. Price, $2. Pp. 228. New York: William Wood & Co., 1917.

The aim of this book is twofold: (1) To be "a guide to other practitioners as to the rôle which the ductless glands play in promoting bodily health," and (2) "to point out those morbid states of health in which organic extracts may be utilized with success." The glands written about at some length are the thyroid and parathyroid, including, of course, the subjects of hyperthyroidism and thyroid deficiency; the pituitary body; the suprarenals; the pancreas; the sexual organs and their internal secretion, and the internal secretions of digestion. There is a chapter on the therapeutic application of hormones, and one containing conclusions and a bibliography. Other glands, organs and tissues are referred to in the text (the liver, spleen, thymus, brain, cord, gastric mucosa, etc.), but are not given as much prominence as some of the others. The pineal gland is not mentioned.

From a literary point of view the book is readable. It would have been gratifying if the volume really presented to the general practitioner the "salient facts" gathered from "lengthy works" dealing "with ductless glands and their secretions," which include "the results of laboratory research in detail." This, unfortunately, is not the case. It appears a random compilation of statements from a limited number of authors. Any one who has read critically the physiologic evidence of the larger works referred to in the author's bibliography should be able to write with greater accuracy on the physiology and therapy of these glands, especially if he has kept in touch with what has appeared on the subject since the books were published—a huge responsibility which devolves on the man who desires accurately to inform his busy fellow practitioners. Others have accepted the responsibility in full, and their conclusions as to the present value of opotherapy have been less optimistic but more accurate.

Hormone therapy just now is a thing to conjure with. If much of the current "drug therapy is empirical," and if "much of such treatment would be quite useless were it not accompanied by the hope and faith of the patient" (p. 213), why is the same statement not applicable to Cobb's cures of "neurasthenia following a severe abdominal operation," after considering the syndrome, by oral administration of pituitary extract (p. 6), or other cases of neurasthenia in which dry suprarenal extract administered orally is indicated, or to those cases in which "it is sometimes of service to use what Leonard Williams calls a 'mitrailleuse,' i. e., a preparation containing the extracts of many glands. Such a one is hormatone, and it is claimed that its exhibition is followed by marked benefit in many indefinite conditions" (p. 12). Indeed, some, no doubt, would like to know why "extracts of brain and spinal cord, of the pancreas and liver, of the testes and seminal vesicles are of much help in fattening up patients" (p. 14). Are hormones responsible? Or is it faith and hope? Or would franklinism, roentgen rays, massage, psychanalysis, absent treatment by "Christian Science," each singly or combined as a "mitrailleuse," do quite as well? May it not be due to the "hyperalimentation" by feeding a great deal of food in a powdered form? But then, the "mitrailleuse" is frequently indicated in convalescence, as after pneumonia (pp. 13 and 14) and for supposed "hypoendocrinism"—in the "functional neuroses" (p. 211). Even "cases of acromegaly have been reported as cured, or much relieved, by preparations containing thyroid, sexual glands, spinal cord, etc., presumably by restoration of the hormonic balance produced by the antagonistic extracts" (p. 206). It is the shotgun prescription in the twentieth century under a new guise!

Space does not allow complete critical analysis of this curious book. Attention will be called to a few of the errors of fact and logic:

Every one believes that there is a relative and absolute diminution of both colloid and iodin in exophthalmic goiter; still Cobb asserts (p. 48) that "iodine is excessive in the colloid in Grave's disease." Furthermore, as long as the author does not give proof of the view that we are dealing with several different hormones of the thyroid gland, how can any one conceive of the presence of symptoms of hypersecretion and hyposecretion in one individual at the same time, or, as the author states in quoting the views of Léopold-Lévi and H. de Rothschild, that characteristics of "thyroid excess and thyroid deficiency . . . may be present successively or even concurrently in the same patient" (p. 71)? When the author writes that hypersecretion and hyposecretion of the thyroids "are present, but not necessarily at the same time," he implies that they can be present at the same time. Such statements call for an explanation. And the practitioner who reads would like to know what form of opotherapy is used to remedy this synchronous excess and deficiency of thyroid secretion.

It seems that the author is not familiar with the use of pituitary solution as an antidiuretic in cases of diabetes insipidus (palliative measure). Furthermore, quite a number of physiologists and not a minority of clinicians are satisfied that pituitary solution is no more a galactagogue (Gaines) than is thyroid (p. 86). Waiving these possibly disputed points, it has been known since 1898 (Compte) and abundantly verified since then that the pituitary gland undergoes a hyperplasia during pregnancy and no "hypoplasia," as Cobb asserts. In fact, the enlargement of this gland during pregnancy may result in symptoms of raised intracranial pressure (Fisher: *Brit. Jour. Ophth.*, 1917, **1**, 593-599).

Passing now to the suprarenal gland, we find the author's knowledge of the physiology of this organ markedly deficient (p. 118). He seems not to know that death in animals consequent to the removal of the suprarenals is due chiefly, if not entirely, to the removal of the cortex of this gland and not to the removal of the medulla, which gives rise to epinephrin.

The tonus theory espoused by Cobb is of historical interest. As Swale Vincent wrote recently of the medulla and its epinephrin: "It is difficult to adduce any satisfactory evidence that the secretion of the chromophil tissue is of any service whatever in the normal state of the animal." We do know at present that the cortex of the suprarenal is necessary for life. The muscular asthenia of Addison's disease is comparable to the muscular asthenia in animals which die following the removal of the cortex of the suprarenal, and not the medulla with its epinephrin. Regarding the action of the latter on the heart, Cobb states on page 98 that it "increases the rapidity of the heart's action"; on page 118 that it "causes slowing of the pulse when injected"; on page 192 again that it "causes a rapid rise in the pulse rate."

According to Cobb, the hormone of the pancreas is concerned with the prevention of an undue amount of glucose from accumulating in the blood. Because of this error he hopelessly confuses the various glycosurias that result from hyperglycemia (epinephrin, puncture glycosuria) with pancreatic diabetes and diabetes mellitus. Whereas most investigators admit that in the latter there is partly overproduction of glucose and a failure of storage of glucose, the essential trouble in these conditions is a failure of oxidation of the sugars. Common to puncture diabetes, epinephrin glycosuria and pancreatic diabetes or diabetes mellitus is solely the hyperglycemia and glycosuria. The supposed lack of balance between the suprarenals and pancreas as a cause of pancreatic diabetes has been, like other cases presumably due to lack of balance between antagonistic glands, from the first an ingenious hypothesis, without the slightest experimental evidence in its support.

No mention is made of the Allen treatment in diabetes mellitus, the most satisfactory we have and based on a theory supported by experimental evidence on lower animals and practical results on human beings. To be sure, the Allen treatment does not involve the feeding of organ extracts singly or combined. However, when therapeutic measures, such as bile salts, calcium salts, parathyroid extract, and faradism and galvanism applied to the sympathetic of the neck, are mentioned in cases of exophthalmic goiter (p. 50), the most hopeful form of treatment in diabetes certainly deserves mention, especially when Cobb himself says (p. 145), "It must be confessed that there is an opening for any form

of treatment which will make the lot of the diabetic an easier one." Feeding of preparations of the pancreas, even when the latter are made from the islets themselves, have been notoriously ineffective in ameliorating the symptoms of diabetes except in those instances possible in which whole pancreas preparation has been given to replace loss of the external secretion. As a matter of fact, the disease usually becomes worse. Every practitioner has a right to ask, therefore, why no more than a passing reference has been made to Allen's work, such as appears on page 220, and to his later work on human patients, which receives no consideration at all.

Space does not allow a discussion of the supposed physiologic value that "liver extracts are supposed to possess." Not that Cobb subscribes to all or any of the statements. But why, it may be asked, should the book contain statements prefaced by "it has been stated," "hepatic extract has been employed," etc., when the author should know that there is no scientific evidence in favor of this particular form of medication? Why should the general practitioner become familiar with these misguiding statements?

Cobb does, however, advise the use of the various preparations of secretion. In an article, "Has Secretin a Therapeutic Value," by Carlson, Lebensohn and Pearlman (THE JOURNAL, Jan. 15, 1916, p. 178), it was indubitably shown that active secretin is not efficacious when given by mouth, and that the "presence of secretin or prosecretin cannot be demonstrated in the commercial preparations 'Secretogen,' 'Elixir Secretogen' and 'Duodenin.'" In the case of "Secretogen," which Cobb mentions specifically, it was shown that "intravenous injection of 100 times the therapeutic dose reveals occasionally an insignificant trace of secretin."

CLINICAL CARDIOLOGY. By Selian Neuhof, B.S., M.D., Visiting Physician, Central and Neurological Hospital. Cloth. Price, $4. Pp. 302, with 247 illustrations. New York: The Macmillan Company, 1917.

Neuhof has attempted to put into small compass the essentials of the etiology, pathology, symptomatology, diagnosis and treatment of diseases of the heart. He has succeeded wonderfully well. He has shown a wise discrimination in deciding both what should be omitted and what included. There is a good epitome of the essentials of physical diagnosis, a concise summary of the general plan of treatment. Pathology is treated rather scantily. Symptoms, diagnosis and prognosis are handled in a brief but generally satisfactory manner. The main value of the book is its first nine chapters. Here are discussed the later views as to the anatomy and physiology of the heart, together with the subjects of the polygraph, electrocardiograph and roentgen ray. Here also are considered the cardiac irregularities. While these chapters, naturally, are largely of the nature of compilation, one clearly recognizes that the author has more than a mere book knowledge of his subject and that he is practically acquainted with the working of these instrumental aids to diagnosis. More than that, he has an opinion of his own on many of the moot questions of cardiology and is clearly of an investigatory turn of mind. This combination of the investigator and the student of medical literature with the practical clinician who is familiar not only with the bedside features of cardiac disease but also with the more refined means of instrumental diagnosis is what makes the book a live and stimulating one. There are points on which the reader might raise the question of doubt; there are errors of typography and some rather faulty English; but the merits so far outweigh these minor defects that we can strongly recommend the book to the student and general practitioner. It is well and instructively illustrated.

THE THIRD GREAT PLAGUE. A Discussion of Syphilis for Everyday People. By John H. Stokes, A.B., M.D., Chief of the Section of Dermatology and Syphilology, the Mayo Clinic, Rochester, Minn. Cloth. Price, $1.50 net. Pp. 204, with illustrations. Philadelphia: W. B. Saunders Company, 1917.

The author has put the important facts in our knowledge of syphilis into form for the lay reader. He considers all of the aspects of the disease as it affects the individual in his personal and in his social life. The work is easily read and worthy of the purpose for which it was prepared.

Social Medicine, Medical Economics and Miscellany

The Economic Problem of Crippled and Disabled Men

The economic rehabilitation of crippled and disabled men in military service is now and will continue to be one of the great problems of the war. The Red Cross Institute for Crippled and Disabled Men is already providing care for a number of civilian cripples, and a painstaking study of their needs is being made with a view to meeting future conditions. The experiment had for its primary object the cooperation of the institute with the cripples themselves, with a view to finding out what attempts they were making to readjust themselves to the demands of industry, and is described by a member of the staff (Faries, J. C.: The Economic Consequences of Physical Disability, a Case Study of Civilian Cripples in New York City, Publication 2, Red Cross Institute for Crippled and Disabled Men). Investigators secured data on 361 cases of injury to upper and lower limbs resulting in the loss of one or more members, and the statistics they obtained form the basis of the report. A large part of the data were secured from the records of the New York State Industrial Commission, which stated the nature of the man's injury, the amount of his wages at the time of his accident, and the amount of compensation awarded. One of the most important facts brought out by the investigation was that a man's return to industry depends largely on the kind of surgical attention he receives. That return may be hastened by a skilful operation or greatly delayed by a bungling one, in which the patient may be left with a clumsy and bulging stump, or with the nerves of the stump exposed, or with bone splinters, or ankylosed fingers that destroy the usefulness of the hand. These facts were confirmed by the records of twenty New York hospitals, as well as by the stories of the cripples themselves. Undoubtedly any institution that hopes to reeducate the crippled and the disabled and to fit them for self-support must have the cooperation of skilled orthopedists. Another fact revealed by the investigation was that men with artificial legs stand a much better chance of finding employment than men who are without them, or who use crutches. Many employers, it seems, who object to crutches, have no objections to artificial limbs. The great difficulty, however, is that a really efficient hand and arm is so expensive that few of the wage-earning class can afford one. The report points out that the institute should be familiar with the best prosthetic appliances obtainable, and recommends that a museum for the display of such devices be added to its equipment. Out of the 361 cases investigated, 129 men were found in need of reeducation either for their old trades or for new occupations. After careful inquiry, however, less than half of these appeared to be hopeful candidates for such training as the institute could give.

The problem which the institute has been established to solve is being handled on a large scale in New Zealand by a special department of the government, which undertakes to find suitable employment for the returned soldier and otherwise to assist the process of his readjustment to civilian life. Preference in employment is given by all departments of the government to all returned men. The same policy is pursued by the local labor offices, while the railway department undertakes to provide for its own former employees returning disabled from the front. This work has been highly successful, possibly on account of the fact that, at present, there is a great demand for labor in New Zealand. On the other hand, the results of efforts to reeducate disabled men have not, as yet, been particularly encouraging, according to a report based on material obtained from the Returned Soldiers' Information Department of New Zealand (McMurtrie, D. C.: Memorandum on Provision for Disabled Soldiers in New Zealand, Public 3, Red Cross Institute for Crippled and Disabled Men). A number of technical schools and colleges have offered courses of practical training for disabled men, but with a few exceptions, the attendance of the classes has been irregular and the progress poor, in spite of the main-

tenance allowance granted by the government to all men attending classes and making satisfactory advancement. Considerable effort has been made to induce the government to establish reeducational schools for the men, but the plan is not favorably regarded by the minister in charge of the Returned Soldiers' Information Department. He is quoted as doubting the success of the scheme because of the probable distaste of the men for the necessary restraints of institutional control. The natural desire of the men to return at once to productive labor, as well as their desire of independence from control, doubtless accounts, in a large measure, for the indifferent results the government has obtained from its efforts at reeducation.

Child Labor and Child Welfare in South America

Argentina has a child labor law requiring a permit for children under a certain age before they engage in industry. This permit, according to Edward N. Clopper of the National Child Labor Committee (*Survey*, Jan. 5, 1918) is an improvement over any permit used in the United States. It is in the form of a booklet that contains the name and address of the bearer, a description, his certificate of age, his record at school, his certificate of physical fitness, and the signature of the official granting the permit; also the law governing the employment of minors, and a record of all the positions held by the bearer, with dates, names of employers, character of service rendered, wages earned and other information, making it a source of the industrial history of the child as well as of important statistical information.

Uruguay, he says, is one of the most progressive countries. There they have the eight-hour day for adults, and only 4 per cent. of the scholastic population is illiterate. With a population of a million and a half there are 1,000 schools with an enrolment of 100,000. Attendance is compulsory; medical inspection has been highly developed and embraces examination and vaccination of pupils and teachers; school construction and school hygiene and programs are properly supervised with reference to the welfare of the pupils.

Bogota, Colombia, has school medical inspection annually, in charge of three physicians who keep a record of examinations and recommend measures to promote hygienic conditions.

In Chile the most effective child welfare work is carried on at Santiago, where a welfare society has established milk stations, retreats for mothers with new-born children during convalescence, a system of distributing clothing to those in need, and mothers' consultations for prenatal care for prospective mothers, with financial assistance, where necessary. As a result of the work of the society since its organization sixteen years ago, the death rate of infants under 1 year has been cut from between 34 and 39 per cent. to 8.4 per cent. This work cost during 1917 about 170,000 pesos (dollars), of which 70,000 pesos were contributed by the government.

Malaria Control

A reduction in the incidence of malaria and in the economic losses it entails was the object of a series of demonstrations in malaria control, conducted in 1916 by the United States Public Health Service in cooperation with the International Health Board (Public Health Bulletin 88: Malaria Control, A Report of Demonstration Studies Conducted in the Urban and Rural Sections, by R. C. Derivaux, H. A. Taylor and T. D. Haas). The demonstrations took place in southeastern Arkansas, where mosquitoes abound, and farming and lumber enterprises have, at times, been abandoned because of the havoc wrought by malaria among the workers. Here, three species of *Anopheles* were identified as carriers of malaria: *Anopheles quadrimaculatus* Say, *Anopheles punctipennis* Say, and *Anopheles crucians* Wiedemann.

During the season of active mosquito propagation, the chosen districts were systematically examined by the sanitary inspector, and a chart was kept recording the monthly incidence of malaria as affected by the antimosquito operations. The campaign involved the drainage of wet areas, the filling of pits, the oiling of pools, and the removal of obstructions from ditches whose waters fairly swarmed with larvae and pupae. The result was a decided reduction in the malaria rate from May to December.

Two different types of localities were selected for the investigation—a small town, where the work of clearing and draining was supplemented by the use of oils and larvicides, and a group of plantations, where studies in the efficacy of house screening and of quinin in immunizing and sterilizing doses were conducted. In one series in which 237 persons were given quinin for immunization, there was a reduction of 64.45 per cent. in the incidence of malaria. In a group of sixty-nine carriers to whom quinin was given for sterilization, the reduction amounted to 95.17 per cent.

The bulletin is freely illustrated, and is accompanied by many charts and tables dealing with every statistical phase of the investigation.

Medicolegal

Approval of Claim for Treating Abscess After Thirty Days from Accident

(*In re McCaskey (Ind.), 117 N. E. R. 268*)

The Appellate Court of Indiana, Division 1, holds that, under the provision of the workmen's compensation act of that state, which requires an employer to furnish a physician only during "the thirty days after an injury," a physician was entitled to have his claim for $50 for services approved by the industrial board in a case in which an employee was accidentally struck in the forehead with a sledge hammer, February 17, and continued his work in the belief that he had received no physical injury until and including March 18, when in the evening he was taken with a violent pain in his forehead and on the following day the physician was called, who diagnosed the trouble as an abscess in the right frontal sinus, drained the sinus, and continued his treatment for about ten days. The court says that, under the facts of this case, the employee would have been entitled, at common law, in an action for damages for his injuries based on negligence, as one of the elements of his damage, to the expense he incurred for medical and surgical services necessary to the proper treatment of such injuries. By the act involved, the legislature expressly recognizes a portion of such services as a proper element of compensation to an injured employee. The language of the statute, and justice and reason alike, authorize the conclusion that the services of an attending physician for which compensation was intended was a service to be rendered after there was an actual known physical injury, and hence when, as in this case, the undisputed facts show an accident to an employee in the presence of his employer, the immediate effects of which are not such as to indicate to either employer or employee any disability within the meaning of the statute or any injury requiring the services of an attending physician as provided therein, and such physician is, at the time, neither asked for or called by the employee, nor furnished by the employer, and it turns out later that the injury resulting from such accident is more serious than was at first thought, and is in fact such as results in a disability of the employee within the meaning of the statute, the thirty-day period during which the employer must, under the statute, furnish an attending physician, begins to run when the disability to the employee within the meaning of the statute develops from such injury. It follows that under the facts certified to the court in this case by the industrial board, such board is, by the statute, given authority to approve the physician's claim, and, assuming that the facts above indicated are undisputed, this court would say as a matter of law that said claim should be allowed. However, the question of when an injury occurred, like any other question of influence in determining whether a claim should be allowed by the industrial board, is, ordinarily, a question of fact to be determined by such board from all the evidence before it; and its determination thereof, when it has any evidence for its support, will be conclusive on this court.

Roentgenographic Pictures in Book as Evidence—Damages for "Blues"

(Chicago, R. I. & G. Ry. Co. vs. Smith (Tex.), 197 S. W. R. 614)

The Court of Civil Appeals of Texas, in affirming a judgment for $10,000 damages for personal injuries, in favor of plaintiff Smith, holds that there was no error in permitting the plaintiff to introduce in evidence, in connection with the testimony of a physician, certain roentgenographic pictures of the bones of the normal foot found in the medical work known as "Treatment of Fractures," by Scudder. The court says that on the cross-examination of the physician he stated that the plates or photographs introduced were to his knowledge correct pictures of normal arches of the feet. He further testified that the book containing the plates was a standard work, accepted by the medical profession generally. It further appeared from the record that the condition of the plaintiff's feet, both before and after the injury, was shown by the evidence. In this state of the record, the plates were certainly not immaterial or irrelevant. Their correctness was established by the evidence of the physician, and, while the predicate for their introduction in evidence was not laid prior to their introduction, this objection was removed by proper subsequent proof.

On the witness stand the plaintiff stated that the condition of his foot affected his mind, the way being that he got awfully blue at times, when he saw that he could not do as he used to do, and get about as he would like to, and hold the positions that he would want to. It was contended that if he was correct in his statement that his attacks of "blues" and his occasional morbid mental conditions were due to the injury to his feet, still such effects of an injury could not form the basis of a recovery, or enter into the estimate of the damages, according to the rule which prevails in the United States courts. But the court does not agree with that contention. It says that some of the lower federal courts have held that mortification or distress of mind from the contemplation of one's crippled condition, and its effect on the esteem of his fellows, which is held to be mental pain, separable from the physical suffering caused by the injury, is too remote, indefinite and intangible to constitute an element of damages in such case. But the statement of the plaintiff clearly did not bring this case within that rule. He made no reference whatever to the esteem his fellows would place on him, or to the mortification attending the realization of the fact that he was maimed, crippled and disfigured, but stated that his mental condition, which he described as "the blues," was the result of the thought that he could not, since the accident, "get about" and do as he would like to, and hold the positions which he would want to hold. As an element of damages this came within the rule announced in the case of *M., K. & T. Ry. Co.* vs. *Miller,* 25 Tex. Civ. App. 460, 61 S. W. 978, in which a writ of error was denied by the Supreme Court of Texas.

Acute Nephritis and Other Diseases as Injuries by Accident

(United Paperboard Co. vs. Lewis (Ind.), 117 N. E. R. 276)

The Appellate Court of Indiana, Division No. 1, affirms an award in favor of claimant Lewis, who, while in the employ of the company, on the breaking of an iron pipe, became overheated in flushing hot steam pulp into the sewer with hot water from the exhaust of an engine, and then, on his way home to dinner began to chill, and continued to chill for several days, and acute nephritis manifested itself. The court says that the workmen's compensation act of Indiana makes provision for the payment of compensation for personal injury or death by accident to an employee, arising out of and in the course of his employment. Repeated efforts have been made to define an "accident" as used in similar acts in various jurisdictions, but the definitions are not uniform. One frequently approved defines an accident to be "an unlooked for mishap, an untoward event which is not expected or designed." The courts have also differed as to whether a disease following an employment should be considered an injury by accident within the meaning of such acts. In the various decisions on this subject it is generally recognized that diseases are of two classes: first, the so-called industrial or occupational diseases, which are the natural and reasonably to be expected results of a workman's following a certain occupation for a considerable period of time; second, diseases which are the result of some unusual condition of the employment. The first class is illustrated by lead poisoning and the second by pneumonia following an enforced exposure. As a rule, such industrial or occupational diseases are not considered as injuries by accident and in the absence of special statutory provision compensation is not allowed therefor. On the other hand, it is generally accepted that a disease, which is not the ordinary result of an employee's work, reasonably to be anticipated as a result of pursuing it, but contracted as a direct result of unusual circumstances connected therewith, is to be considered an injury by accident, and comes within the provisions of acts providing for compensation for personal injury so caused. In this case the industrial board may have very properly found that the breaking of the pipe created an unusual condition under which the claimant was required to work at the time in question, resulting in enforced exposure. In such event, any disease, of which such exposure was shown to have been the cause, might properly be said, under the rule stated, to constitute a personal injury by accident, and to come within the provisions of the workmen's compensation act of this state. It may be well to observe that the courts are practically unanimous in holding that the words "by accident arising out of and in the course of the employment," as used in workmen's compensation acts, should be given a broad and liberal construction in order that the humane purpose of their enactment may be realized. Their meaning, when so used, has been frequently considered in various jurisdictions having such acts, and it is generally accepted that an injury is received in the course of the employment when it comes while the workman is performing the duty for which he is employed, and it arises out of the employment, when there is apparent to the rational mind, on a consideration of all the circumstances, a causal connection between the conditions under which the work was required to be performed and the resulting injury. The evidence in this case furnished a sufficient basis for finding a causal connection between the conditions under which the work was required to be performed and the resulting injury. The contention that the claimant brought on the chill by voluntary exposure was without merit. If such fact were conceded, it could not defeat his right to compensation, even if it could be said that such exposure was an act of negligence which contributed to his injury. Mere negligence is not a ground of defense to a claim for compensation under the act in question, and there was no suggestion of wilfulness. Nor was the fact that the claimant did not chill until he had ceased work and left the company's premises of any consequence under the attendant facts.

Power of Assistant Engineer and Others to Employ Physicians

(Carson vs. Chicago, M. & St. P. Ry. Co. (Ia.), 164 N. W. R. 747)

The Supreme Court of Iowa reverses a judgment obtained by the plaintiff for medical services and hospital care for a colored laborer employed by the defendant, who was badly cut one rainy day when he had laid off from work and gone to a village. The case turned largely on the question of the power of the assistant engineer in charge of the work being done by the defendant to employ a physician. The company's regularly employed surgeon was absent when the physician was engaged, and, without reviewing the evidence, the court says it is of the opinion that it was sufficient to have warranted the jury in finding that the assistant engineer had authority to engage the physician's services, had the man been injured while in the line of his employment. Surely ratification of his action in repeatedly taking employees to physicians other than those regularly employed by the company, by compensating them for services so rendered, was evidence that he had authority so to do. But no authority had been expressly conferred on the assistant engineer to employ a physician in behalf of the defendant, or to authorize

him to engage the services of the plaintiff or procure the care of the patient at the hospital; nor, as the court thinks, had such authority been impliedly conferred on the assistant engineer by virtue of his position.

There is nothing in the designation "assistant engineer" warranting the inference of large discretionary powers in representing the company. Indeed, the name suggests limited, rather than general, powers. The circumstance of being "assistant" imports subordination to another, and puts all on inquiry as to the scope of his activity in helping another or others. The duties of an assistant ordinarily are circumscribed. Authority to employ a physician is not to be inferred from the mere fact that an employee is a roadmaster, or is a conductor, or is a foreman, or is a yardmaster, or is a station master, or is a general surgeon. One court held that this is true also of a division superintendent. But as to this there is some conflict in the authorities.

This court has no difficulty in reaching the conclusion that the assistant engineer was without authority to employ a physician to treat or operate on an employee injured while not engaged in the line of his duty or service and within the scope of his employment. The company was under neither a legal nor a moral obligation to care for him, or to see to the healing of his wounds. Though the wound may have been such as to require immediate attention, the injury was not suffered while he was engaged in the service or in the performance of a duty for the defendant, and therefore the authority of another employee to render assistance by securing medical attention could not be implied. If it could be said that the wound was such as involved an emergency and required immediate attention, the situation was not such as that authority of the defendant's subordinate officers or employees, such as foreman or assistant engineer, to employ medical aid, would be implied. This happens only when the employee is injured in the actual service or in the performance of some duty for the master. No duty to provide for medical aid could have been implied, save from the circumstance that the emergent injury occurred in effectuating the purpose of the party held liable, or because of other interest, and this court has found no case to the contrary.

It was argued that the physician was not required to ascertain at his peril whether the employee was injured while actually engaged in the line of his employment; but it is elementary that those dealing with agents are bound to know the extent of the agent's authority. If they do not know, they must ascertain at their peril. On the other hand, the principal is not charged with knowledge of anything the agent may do in excess of his authority, and is not bound thereby, save on ratification, unless the party dealing with the agent has been misled to his injury by the principal having clothed the agent with apparent or ostensible authority to do the things he has done in excess of authority.

Society Proceedings

COMING MEETINGS

American Medical Association, Chicago, June 10-14.

Alabama State Medical Association, Birmingham, April 16.
Am. Assn. of Pathologists and Bacteriologists, Philadelphia, Mar. 29-30.
American Gastro-Enterological Association, Atlantic City, May 6-7.
American Gynecological Society, Philadelphia, May 16-18.
American Orthopedic Association, Washington, D. C., April 22-23.
Arizona Medical Association, Phoenix, April 25-26.
Arkansas Medical Society, Jonesboro, May 7-9.
Association of American Physicians, Atlantic City, May 7-8.
California State Medical Society, Del Monte, April 16-18.
Connecticut State Medical Society, Hartford, May 15-16.
Georgia State Medical Association, Savannah, April 17-19.
Iowa State Medical Society, Fort Dodge, May 8-10.
Kansas Medical Society, Kansas City, May 1-3.
Louisiana State Medical Society, New Orleans, April, 16-18.
Maryland Medical and Chir. Faculty of Baltimore, April 23-25.
Michigan State Medical Society, Battle Creek, May 7-9.
Mississippi State Medical Association, Jackson, May 14-15.
Missouri State Medical Association, Jefferson City, May 6-8.
Nebraska State Medical Association, Omaha, May 7-9.
North Carolina State Medical Society, Pinehurst, April 16-18.
Oklahoma State Medical Association, Tulsa, May 14-16.
South Carolina Medical Association, Aiken, April 16-18.
Tennessee State Medical Association, Memphis, April 9-11.

ASSOCIATION OF MILITARY SURGEONS OF THE U. S. ARMY IN FRANCE

Meeting held in Paris, Feb. 5, 1918

Relief of the Constriction of Wounds by Incision

Prof. A. Depage, Brussels: When we find ourselves in the presence of a flesh wound from a bullet, with punctiform orifice, we consider it useless in most cases to incise, the opening healing as a rule spontaneously, without showing any complications. We have, however, found exceptions in wounds from a gun fired point blank or at a short distance, such wounds being sometimes in pressing need of incisions. In fact, in these cases the projectile almost always causes a tearing of tissues, a veritable laceration, with an area of attrition more or less deep, in danger of mortification; it would be imprudent not to take measures of relief. We relieve by incisions also when the bullet has severed an important artery and when an aneurysmal hematome has manifested itself. Here, however, the greatest precautions and the avoidance of any carelessness are necessary. Cases of this kind are among the most serious, and should be undertaken only by an expert surgeon, very sure of himself. He should make the ligature of the two vascular or arterial ends, if the joining is possible. When a large artery is cut and the nutrition of the member is in danger, he can with great advantage use Tuffier's paraffined tube.

Big severed nerves form another class of wounds in which we incise immediately. We cannot insist too much, from the moment the patient arrives in the hospital, on the examination of the motor and sensory functions, in the region of the nerve supposed to be injured. The course to follow is summed up by the laying bare of the nerve, the suturing of the two ends, and the placing of the sutured nerve in the neighboring muscular tissue.

Fractures caused by bullets require in general an incision. The operation necessary depends more on the complications just cited than on the fracture itself.

In wounds from artillery projectiles, the conditions are not the same; wounds from bursting shells or bombs are much more serious and are practically always infected, and for this reason require more treatment. Only the small splinters the size of a grain of wheat are left in the flesh, especially if there are a great many of them. All the projectiles of more important dimensions are extracted, and the wound is treated according to the superficiality or depth of the lesion.

Subcutaneous setons, suppurating comparatively little, do not imperatively require incision. However, it is better to have recourse to it, because of the frequent presence of shreds of clothing in the wound, and we know the importance of these as germ vehicles. If circumstances permit, we extract the foreign matter *en masse* through the healthy tissue, and we make the suture at once.

If the wound is slight with subcutaneous course, the extraction of the projectile is in order. However, if the course is no more than 2 or 3 cm., we do not incise. We extract the foreign body with the shreds of clothing by means of a simple curet. If the course is longer, we treat it as a seton.

In deep setons, and penetrating wounds with the projectile included, the question is no longer debatable: incision is necessary in every case.

OBJECT OF TREATMENT

An incision, by opening wide the injured area, relieves the compression of the tissues, constricted by the aponeurotic covering, and helps the secretions. The surgeon who does the work aims to avoid serious septic complications and to encourage conditions favorable to healing and to suturing. To attain this double object, there must be eliminated from the wound, not only the infected foreign bodies (splinters, shreds of clothing, etc.), but also the contaminated tissues, such as injured or mortified flesh, favoring the spread of germs. Let us notice in this respect that the area of attrition, of cellular stupefaction, is not limited to the tissues that have been directly in contact with the projectile, but

extends to a depth of from 0.5 to 1 cm., sometimes even to 2 cm. The vitality of these tissues is affected and there is a great advantage in not allowing them to remain for any length of time with elements less affected or completely unaffected. Subsequent progress of the wound and its rapid cure depend on the promptness of the first treatment and the care in its administration.

TECHNIC OF EXCISION OF DEAD TISSUE

Certain surgeons have recommended the removal of the traumatic matter *en masse* as one would take out a tumor. The length, depth and direction of the wound being exactly ascertained at need by the introduction of a metal conductor, and the wound being completely isolated from the field of operation, they circumscribe the opening with an oval incision, of which the large axis corresponds to the direction of the wound. They cut successively the skin, cellular tissues, the aponeurosis and the muscles, constantly keeping in healthy tissue, in such a way as to limit the area that surrounds the entire wound. Then they remove *en masse* the injured tissue, being careful to keep the healthy from the contaminated. The suture may follow immediately.

Such a complete operation would constitute without doubt an ideal method of treatment, if the traumatic sources were definitely limited and if we could cut into the flesh without considering the organs it surrounds. But it is needless to say that these conditions do not exist when it is a question of deep and extended lesions. It is better then to reserve this process solely for superficial and short wounds of which it was a question before.

The only incision truly rational consists in a wide opening of the seat of the wound, such as is practiced by the great majority of surgeons. Two things are necessary: the incision and the excision of tissues.

Incision.—Before proceeding to the excision of dead tissue, the surgeon must find out, as accurately as possible, the shape of the wound by different anatomic methods. They are indicated in the following manner:

1. For the setons, orifices of entrance and exit.
2. For the lesser wounds, the orifice of entrance, on the one hand, and the situation of the projectile as determined by the roentgen ray, the fluoroscope or the electric vibrator, on the other.

The form of the channel being determined, the incision must be made so as to permit a perfect access to the wound, without any further damage anatomically. According to our experience, the direction of the incisions must vary according to the part wounded and to the nature of the wound:

(*a*) In wounds of the arm, forearm and lower third of the leg, transverse incisions are inadmissible because of the danger of cutting important organs; longitudinal incisions alone are allowed. Whether it is a question of the lesion of a single aspect, or whether both the anterior and posterior aspects have been simultaneously affected, these incisions will always be sufficient to permit of complete excision of dead tissue.

The anterior aspect of the leg requires likewise a longitudinal incision, with this restriction, however, that in its upper third, a wound of the anterior tibial artery may demand a transverse cutting of the muscle.

(*b*) Wounds of the thigh (anterior and posterior surface), the popliteal space and the calf, wounds in seton and simple penetrating wounds, involving both aspects, must in general be treated by incisions parallel to the axis of the member. A transverse incision would not in this case offer any advantage, and would be of such a nature as to occasion very serious damage. Two longitudinal incisions, one in the anterior and the other in the posterior surface, will always permit of a wide approach to the seat of the wound.

In the case of a seton or deep penetrating wound, taking in only one aspect, longitudinal incisions would no longer suffice. The muscular masses are too thick to give access to the deep parts of the wound. It is important, however, that the latter should be deeply incised in order to avoid accidents of gas infection, especially to be feared in great muscular masses. Under these conditions, one will often be led to make a transverse incision, cutting all the organs or a part of the organs interposed between the cutaneous surface and the deep wound: on the anterior face of the thigh, the anterior muscle is incised, also the vastus externus, and perhaps the tendons of the fascia lata; on the posterior face, the biceps and the semimembranosus on the thick of the calf, the twin muscles; and on the posterior surface of the arm, the triceps.

It goes without saying that the transverse incisions must concern only the muscles and the aponeurosis, and respect the nerves and the vessels.

After the excision of dead tissue, it is well when possible to reestablish the continuity of the severed muscles, with catgut stitches in U form, with the object of reuniting the two ends, suturing at least partially the aponeurosis and the skin. The transverse incision thus made leaves no functional trace, on condition, of course, that the suture holds.

If there is any doubt on the subject of the cleanliness of the deep wound, the suturing of severed muscles may be postponed two or three days. By this time the surgeon will be sure of the nature and degree of the possible infection.

Under certain circumstances, when the excision is done late, and there is already a deep infection, immediate suture of the muscular ends must be given up.

Excision of Tissues.—If it is a question of superficial seton, the free edges of the two orifices are resected and these are reunited by cutting the intervening bridge of tissues, so as to transform the course of the wound into a groove. Then, with a pair of heavy scissors, the injured tissues are completely removed from the surface of the groove.

In case of a slight wound or a deep seton, one begins also by resecting the free edges of the orifices of entrance and exit for a distance of from 1 to 2 cm., circumscribing one of these orifices by an elliptic incision.

Each incision is enlarged according to the directions just given, so as to open the wound by one or by two incisions, according as to whether there is or is not an orifice of exit.

The superficial aponeurosis is incised on the same amount of surface as the skin. To follow then the course of the wound in its depth, precautions must be taken against introducing a conductor, such as a grooved probe, which might easily be lost in the muscular tissues. I think that the best way to reach the depth of the wound is to lift the edges of the muscles with two forceps, following the direction of the wound, and to resect the injured parts. If at any time one loses the direction, which happens often in the deeper parts of the wound, a gloved finger introduced into the opening will find it again without difficulty. It is important to notice that the cut muscles contract, and in the course of the work of cleaning, the ends must be looked for in order to excise the injured parts.

The injured muscles must be resected on all the surface of the wound up to the healthy tissue. This is recognized by its contractibility and by its redness, which contrasts with the dull color of the bruised flesh.

The incision in the course of its progress leads to the foreign body, which is extracted with the shreads of clothing. When the surface is largely exposed, it is well to irrigate the wound with neutral solution of chlorinated soda or with warm physiologic sodium chlorid solution, which shows up the bruised and wounded parts.

Concerning fractures, the question of removing bone splinters has been often discussed; surgeons are not yet agreed on this point. Some find it better to remove all splinters by the subperiosteal method; others cling to the idea that only those splinters that are free should be removed. The problem is difficult to solve, as only time and experience will bring us to a conclusion. This is my idea in this respect: If the wound is such that immediate suture may be attempted, I take out the fragments. If, on the contrary, it is evident that the suture cannot be made, by reason of the extent of damage, I do not remove any splinters in the course of the operation, considering it preferable to let those splinters affected by necrosis eliminate themselves spontaneously as fast as the growth progresses. This process has the great advantage of not being followed by a pseudarthrosis and of shortening noticeably the first operation, a thing to be taken

into account when it is a question of a serious fracture, and the patient is in a state of shock.

SUTURE OF WOUNDS

When we incise a wound to prevent infection, we must at the same time try to put it in a state most favorable to a suture.

This may be done immediately after the excision of dead tissue: immediate suture, or within the first five or six days; by delayed primary suture, in which case it is executed, as in the immediate suture, by the simple approximation of the edges, or finally, the suture may be made after sterilizing the wound with neutral solution of chlorinated soda: secondary suture. The latter is done the eighth day, after the wound is covered with granulations. This necessitates always the freshening of the edges, and it is that which distinguishes it from the preceding sutures.

In immediate suture, the treatment varies according to the seat of the lesion: (*a*) For articular wounds, immediate suture is in order, unless the bony lesions are too extensive. (*b*) For wounds on the head, face, feet or hands, the richness of venous blood and lymphatic fluid allows the surgeon to make the immediate suture in perfectly systematic fashion. (*c*) For flesh wounds and fractures, indications for the immediate suture are very relative, but surgeons are inclined more and more to generalize them. The suture must be made within twelve hours after the wound has been inflicted and

STATISTICS OF SUTURES

	Total No.	Complete Success No.	Complete Success Per Cent.	Partial Success No.	Partial Success Per Cent.	Failure No.	Failure Per Cent.
1.—Immediate Sutures—							
Head, face, hands, feet, large articulations	491	473	96.3	8	1.6	10	2.1
Without bone lesion	66	62	95.9	..	.....	4	6.1
With bone lesion	79	71	89.8	1	1.2	7	9.0
Flesh wounds	380	319	83.9	24	6.3	39	9.8
Fractures: Femur	4	4	100.00	..	.....	..	.....
Other bones	26	20	76.92	3	11.54	3	11.54
2.—Delayed Primary Sutures— (done within the first six days)							
Head, face, hands, feet	18	18	100.00	..	.....	..	.....
Flesh wounds	222	207	93.2	8	3.6	7	3.2
Fractures: Femur	...	...	.....	..	.....	..	.....
Other bones	20	16	80.00	4	20.00	..	.....
3.—Secondary Sutures—							
Head, face, hands, feet	64	58	90.6	4	6.2	2	3.2
Flesh wounds	845	724	85.6	70	8.00	51	6.4
Fractures: Femur	39	30	76.9	7	17.9	2	5.2
Other bones	102	92	90.00	3	3.00	7	7.00

only when the surgeon can watch it during at least fifteen days. It offers, as special advantage, automatic reparation of the torn tissues, but the infections that it occasions are always rapid and serious diffuse phlegmonous infections or gas gangrene.

Delayed primary suture is especially adapted to flesh wounds and open fractures. It is done after bacteriologic tests, made in the following way: (*a*) At the first dressing (from twelve to twenty-four hours after excision of dead tissue) we make a culture test by direct examination. (*b*) At the second dressing (from thirty-six to forty-eight hours after excision of dead tissue) we take a new culture. If the first culture does not show the presence of streptococci, and if the microbic enumeration does not go beyond one microbe to two fields, we make a suture. We never suture if the enumeration at the second dressing shows a rising in the microbic curve, even if the microbes are not streptococcic. The delayed primary suture rarely results in failure, involving serious accidents. It offers the inconvenience of requiring two operations; but the second is of minor importance.

Secondary suture is reserved for wounds nonsuturable during the first days because of too much torn tissue or some threatened infection. It offers the great advantage of giving perfect security, but it retards the cure and never gives so complete an anatomic restitution as the preceding sutures. We use it regularly when the microbic curve keeps below one microbe to four fields in two successive examinations, and the culture discloses no streptococci. The deplorable results obtained in those cases have allowed us to establish fairly exact rules on the treatment of wounds, for and against, by suturing.

The accompanying table gives statistics of sutures made in our hospital from May, 1916, to November, 1917. A large part of the failures are due to streptococci in the wound.

Chest Wounds

PROFESSOR TUFFIER, Paris: These injuries were received at the front, and all were due to firearms. They were of different types of severity, and in different portions of the lung. Those nearest the root of the lung were the most difficult to deal with. In the majority of cases, some foreign body was buried in the pulmonary tissue, usually pieces of shell, etc., with particles of clothing. The lung tissue is not as susceptible to infections as other tissue. I have never seen a case of gas bacillus infection of the lung, or a case of tetanus after a pulmonary injury. This is to be attributed to the very active blood supply, and the presence of oxygen in the tissues I have heard of exceptional cases, but have never seen one. The patients were roentgenographed, and the foreign body located. The chest was often opened for severe hemothorax. A severe hemothorax in the pleura will not absorb without fever (secondary infection), etc., and it is much better to open the chest and remove the blood.

In cases without distressing symptoms, I wait until the fifth or sixth day before operating, but in severe cases with extreme hemothorax, when the heart is crowded to the opposite side and with dyspnea, I believe it safer to operate at once than to wait. Before opening the chest, if not in the region of the wound, the most accessible point, particularly in cases of hemothorax, should be selected, as this may be confined to the posterior region, and the opening may be anterior. A portion of the rib is resected and strong traction made on the margins of the wound. This will usually give an accessible field. After the removal of the foreign body, the hemorrhage should be controlled, and the parietal pleura closed. It is especially desirable to have the pleura closed. All wounds are closed primarily, by first closing the parietal pleura, the latter being essential. The lung soon expands when the pleura is closed, and assumes its normal function. In some cases it is necessary to make more than one opening in the chest wall, as there may be multiple injuries of the chest. In some very severe cases of chest injury, the patients now appear to be normal. Local anesthesia is employed first, followed by a general anesthetic. There does not seem to be much cause for alarm with regard to the anesthetic, as all these patients recovered. The operations in the chest are almost as successful as those within the abdomen, and the same principles of surgery are followed.

There are fewer cases of infection now, than at the beginning of the war, and the results are much better, as a result of the improved methods of transportation of the wounded. In the early days of the war we used many horse ambulances, and did not have equipped hospital trains, and many of the wounded did not arrive at the hospital until twenty-four or thirty-six hours after the injury was infected. All wounded patients should be treated as soon as possible.

The hospital of Professor Depage is situated in Lepenne. It is on that small portion of Belgian territory unoccupied by the enemy, and is situated just beyond the shell fire range. The surgical work done in this hospital is considered by all surgeons to be probably the best of any work done in Europe. It is the Mecca for surgeons. The first question that comes to the surgeon's mind is "Why so few infections, and such good results?" The answer is, "His hospital is close to the line. He receives his patients early, two or three hours after injury. The patients have not passed through two or three dressing stations. The wounds may be contaminated, but not infected. It is the condition in which the patient is received, and his splendid surgical work of experience, that give the result."

It is the opinion of the French, British and Belgian surgeons that the earlier the patients are operated on, the better the result. They now have had three and a half years' experience in military surgery, and if they were again to arrange their hospital system, I think it would be different.

I would suggest that the American medical corps take advantage of our experience, and I think it would be wise

if our base hospitals were divided into an operating hospital and a base, the operating hospital to be located as near the line as thought safe. Here the operating could be done, and the patients remain for a time. This would be different from the ordinary casualty clearing station. The hospital should have 500 or 600 beds, so that the patient may remain there for several days after the operation. It has also been proved that patients removed shortly after operations do not do as well as those who are allowed to remain for a time. That is, the hospital should be divided into an operating hospital and a base, all under one control, with the surgical operating staff all at the advanced hospital.

DISCUSSION

It was the opinion of the surgeons present that the British system had too many dressing stations. One or two could be done away with to advantage. And their bases are too far from the line. The fewer times the wounds are dressed before the final operation, the better, and the sooner after the injury the patient is operated on, and wounds closed, the better the result. From the foregoing the following conclusions were offered:

1. A well organized operating hospital should be located as close to the front as thought safe, and in a position to be evacuated quickly if necessary.

2. This hospital should be equipped with operating facilities, and in charge of the operating portion of the staff.

3. The hospital should have a sufficient number of beds, so that the patient may remain several days following an operation.

4. The base hospital and the advanced operating hospital should be managed as one, and the patients evacuated from the advanced to the base, with their surgical records, and kept under the care of the same unit.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

January, 1918, **74**, No. 3

1 Principles of Diagnosis in Psychiatry. E. S. Abbot.—p. 369.
2 Study of Neuroglia in Case of Sarcoma of Brain. C. Ricksher.—p. 381.
3 *Clinical and Anatomic Analysis of Two Cases of Multiple Sclerosis. L. G. Lowrey.—p. 395.
4 Problem of Individual Patient in Large Hospitals. W. A. White.—p. 405.
5 Prevention of Insanity and Degeneracy. C. W. Burr, Philadelphia.—p. 409.
6 Extra Asylum Psychiatry. L. P. Clark, New York.—p. 425.
7 *Does Paretic Gold Sol Curve in Psychiatric Cases Always Indicate Syphilis of Nervous System? P. G. Weston, Warren, Pa.—p. 431.
8 Revelations of Unconscious in Toxic (Alcoholic) Psychosis. C. C. Wholey, Pittsburgh.—p. 437.
9 Malingering. Problematical Case. W. C. Sandy, Columbia, S. C.—p. 449.
10 Occupational and Industrial Therapy. How Can this Important Branch of Treatment of Our Mentally Ill Be Extended and Improved? L. V. Briggs, Boston.—p. 459.

3. **Analysis of Cases of Multiple Sclerosis.**—A man whose trouble began with a "shock" at the age of 26, who had numerous convulsions through a period of years and whose neurologic symptoms varied from time to time, showed at necropsy an area of gliosis in the left parietal lobe, together with patchy gliosis in the cord. His condition had been diagnosed syphilitic dementia, brain tumor, multiple sclerosis and epilepsy. A girl of 19, previously immoral, was found to have spinal fluid changes such as are found in neurosypailis (except that the Wassermann test was negative), together with marked and varying neurological symptoms. The necropsy showed a meningitis of mild grade, together with an extremely pronounced multiple sclerosis. Lowrey says that the relationship between the neurosyphilis (?) and the sclerosis is obscure. They may stand in the relation of cause and effect, or they may be coincident, or both meningitis and sclerosis may be due to some other cause. Two unusual combinations of lesions are presented: (*a*) large focal lesion of cortical gray matter in multiple sclerosis; (*b*) combination of meningitis and multiple sclerosis.

7. **Does Colloidal Gold Curve Indicate Syphilis?**—In the course of 1,500 routine examinations of spinal fluid (Wassermann reaction, globulin tests, cell count and colloidal gold reaction) Weston found that the fluid from three patients, who had no history of syphilis and no positive Wassermann reactions and two negative syphilitic tests, caused a precipitate of colloidal gold in the paretic zone.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

February, 1918, **77**, No. 2

11 Evolution of Male Midwife, with Some Remarks on Obstetric Literature of Other Ages. H. D. King, New Orleans.—p. 177.
12 Should Uterus Be Removed When it Becomes Imperative to Interrupt Pregnancy? E. Marvel, Atlantic City, N. J.—p. 186.
13 Use of Chloroform in Labor. I. L. Hill, New York.—p. 188.
14 Retained Secundines; Study of Etiologic Factors. J. E. Davis, Detroit.—p. 192.
15 *Methods for Overcoming Mechanical Obstructions to Pregnancy. R. T. Morris, New York.—p. 208.
16 Version; Report of Two Hundred Cases Since September, 1916. I. W. Potter, Buffalo.—p. 215.
17 Management of Labor in Narrow Pelvis. E. G. Zinke, Cincinnati.—p. 221.
18 Case of Gangrene of Uterine Fibroid Following Parturition; Panhysterectomy. R. Waldo, New York.—p. 230.
19 Osteoma of Descending Ramus of Pubes and Ascending Ramus of Ischium Obstructing Pelvic Outlet; Pregnancy. Removal of Osteoma. J. N. West, New York.—p. 232.
20 Case of Pregnancy with Unusual Complications. M. A. Tate, Cincinnati.—p. 235.
21 Ten Years' Experience with Early Mobilization after Abdominal Pelvic Operations. D. W. Tovey, New York.—p. 237.
22 Uncinariasis in Pregnancy. G. F. Wilson, Charleston, S. C.—p. 247.
23 *Rationale of Roentgen Therapy and Radium in Uterine Hemorrhage. J. A. Corscaden, New York.—p. 250.
24 Large Pedunculated Cavernous Angioma of Liver Reaching Down into Pelvis and Causing Obstetric Difficulty. I. C. Rubin, New York.—p. 273.
25 Complete Pelvic Obstruction Due to Fibromyomas as Cause of Puerperal Psychoses. H. P. DeForest, New York.—p. 276.
26 Pathology and Surgical Treatment of Gonorrheal Infection of Female Generative Organs. J. W. Kennedy, Philadelphia.—p. 282.
27 Pathology and Treatment of Peritoneal and Pelvic Tuberculosis. H. A. Duncan, Philadelphia.—p. 288.
28 Modification of Technic of Cesarean Section with Hysterectomy. E. A. Schumann, Philadelphia.—p. 297.
29 *Pregnancy in Cases of Tuberculosis of Lungs. J. Walsh, Philadelphia.—p. 292.

15. Abstracted in THE JOURNAL, Oct. 27, 1917, p. 1467.

23. **Roentgen Therapy and Radium in Uterine Hemorrhage.**—Comparing the roentgen ray and radium, Corscaden says, that radium is preferable in practically all cases except in younger women, in whom small repeated doses may be desired. While the actual amount of time consumed in treatment is about the same in both, that devoted to the roentgen ray is spread over from six to ten weeks, while the radium is finished in twenty-four hours. Usually a whiff of nitrous oxid has to be given for the insertion of the radium. Since practically all older women should be curetted to exclude carcinoma, both procedures are carried out at the same time. Uterine hemorrhage from almost any cause may be stopped by the intra-uterine application of radium, and the hemorrhage from disturbed menstruation with or without fibromyoma may be controlled by the roentgen ray. Also, practically all fibromyomas will shrink to a satisfactory degree after roentgen therapy. Practically no harm results from roentgen therapy in these cases. All cases of hemorrhage from a grossly normal uterus in women of 38 or over should be treated by roentgen therapy after carcinoma has been ruled out. In younger women roentgen therapy should be used as a late resort. In cases of uterine hemorrhage associated with fibromyoma of the uterus, roentgen therapy is the proper treatment, if symptoms from mechanical causes are absent and the woman is 38 or over.

29. **Pregnancy in Cases of Tuberculosis of Lungs.**—Walsh had thirty-eight patients in all stages of the disease. They had, after recognition of their tuberculosis, 50 children. Of the 38 mothers, 5 are dead. In 27 the disease was recognized and treated before pregnancy and in the majority before marriage. These 27 had 39 children; 16 were early, 4 moderately advanced, and 7 far advanced cases of tuberculosis. Of these 27, 2 died (7 per cent.), 1 about three months, the other about one year after delivery; the former patient, a far advanced case, became pregnant about four years after treatment; the latter, an early case, one year after. The remaining 25 are apparently as well as before pregnancy, though 3 have had 3 children and 6 have had 2 children. The pregnancies occurred one to twelve years after treatment, the average being four years. In 11 the disease was recognized during pregnancy, one being early, 5 moderately advanced and 5 far advanced. Of these 11, 3 died (27 per cent.), one of these 3 being first seen five days before delivery, 1 twelve days, and 1 two months. In other words, there was no chance for treatment of the first 2 and very little for the third. All three were far advanced cases. Of the remaining 8, 2 far advanced cases seen for the first time at the fifth month, are still under treatment. One was a primipara, the other a sextipara, the latter from her history having had tuberculosis even before the birth of the first child. The remaining 6 came through successfully and are still alive after periods of time varying from three months to thirteen years, the average being two years. On the basis of this experience Walsh advises that active cases of tuberculosis should be advised against marriage; quiescent cases especially after treatment and education bear the duties of marriage sufficiently successfully that if they wish to marry they may be allowed to do so. Quiescent cases becoming pregnant, if put on a rigid régimé, may be expected to come through the pregnancy with but little, if any, advance of the tuberculosis. Active cases becoming pregnant run definite risk, yet the operations for abortion, especially those associated with sterilization, have a mortality making the continuation of the pregnancy more desirable.

American Journal of Orthopedic Surgery, Boston

February, 1918, **16**, No. 2

30 *Nutrition and Vitality of Tendon in Tendon Transplantation. A. Steindler, Iowa City, Iowa.—p. 63.
31 Arthroplasty: Experimental and Clinical Methods. N. Allison and B. Brooks, St. Louis.—p. 83.
32 Arthroplasty with Aid of Animal Membrane. W. S. Baer, Baltimore.—p. 94.
33 Tubercle of Tibia; Its Normal Development and Pathology. F. G. Hodgson, Atlanta, Ga.—p. 116.
34 *Orthopedic Centers of Great Britain and Their American Medical Officers. R. B. Osgood.—p. 132.

30. **Nutrition and Vitality of Tendon in Tendon Transplantation.**—Steindler emphasizes the importance of rigid preservation of the mesotendineum and the practice of side-to-side attachments of the tendons in tendon transplantation.

34. **Orthopedic Centers of Great Britain.**—The organization of the orthopedic centers in England groups itself about the inspector of military orthopedics, Col. Sir R. Jones, and the assistant inspector, Major Pater, professor of anatomy in Liverpool University. There is a central office in Adastral House, which is the Medical War Office. It is on the same floor with the office of Surgeon-General Russell and that of Sir Alfred Keogh, head of all things medical in the British Empire. There are assistant inspectors for the Scottish, Welsh and Irish commands. Orthopedics centers usually consist of a certain number of beds set apart from a general military hospital. In Aberdeen, 500 beds; Edinburgh, 1,000 beds; Glasgow, 500 beds; Leeds, 1,800 beds; Bristol, 300 beds; Liverpool, 1,350 beds; Cardiff, 500 beds; Oxford, 400 beds; Belfast, 200 beds; Dublin, 200 beds, and London, 1,100 beds. A total of 7,850 beds. New centers are being started in Reading, Newcastle, Southampton, Birmingham and Manchester. And over in France, Major Goldthwait is preparing the way for the huge number of beds, 35,000, which our government has directed him to make ready in France.

American Review of Tuberculosis, Baltimore

February, 1918, **1**, No. 12

35 *Attempt to Produce Immunity by Transplanting Tuberculous Lymph Nodes into Normal Animals. G. B. Webb, C. T. Ryder and G. B. Gilbert, Colorado Springs, Colo.—p. 693.
36 *Heliotherapy in Tuberculosis. E. Mayer, Trudeau, N. Y.—p. 698.
37 *Comparison of Physical Signs, Symptoms and Roentgen Ray Evidence Obtained in Pulmonary Tuberculosis. F. H. Heise and H. L. Sampson, Trudeau, N. Y.—p. 709.

35. **Transplantation of Tuberculous Lymph Nodes.**—Early in 1916 a series of guinea-pigs were inoculated by Webb and his associates beneath the skin of the belly, each with about 300 bacilli of a culture from a case of human tuberculosis. A month later, lymph nodes showing fairly advanced tuberculosis were removed from their groins and planted beneath the abdominal skin of a new series of pigs. These animals in turn developed tuberculosis, the disease appearing first in the inguinal lymph nodes. A subsequent series received infected nodes from these, and so on. This experiment was repeated on several series of guinea-pigs, in the hope that some evidence of relative immunity would be secured, but this has not been the case.

36. **Heliotherapy in Tuberculosis.**—Mayer claims that light therapy is a valuable adjuvant in the treatment of tuberculosis but must be used together with the usual routine treatment. In bone and joint tuberculosis, results have been most remarkable, with the closure of sinuses and both the healing of joint lesions and the reestablishment of function. Almost equal success has been met with in tuberculous disease of the skin, mouth, glands, pleura and peritoneum. Occasional disappearance of definite and marked disease of the ocular and genito-urinary apparatus has occurred. In laryngeal cases some few favorable results were obtained, especially by the direct application of light to the focus. Finally, in pulmonary tuberculosis, in a very few selected instances, definite favorable results were obtained that had to be considered as due to this therapeutic aid and which no other means of treatment alone was able to offer.

37. **Physical Signs, Symptoms and Roentgen-Ray Evidence in Tuberculosis.**—Analyses of symptomatology, physical signs and laboratory findings in all cases coming to the Trudeau sanatorium during a certain period of time, compared with the type of lesion seen on the roentgenogram, support the belief in the existence of a peribronchial or lymphatic type, in contradistinction to a parenchymatous or alveolar type. Nineteen cases give a history of tuberculosis in whom there were no definitely positive physical signs present. Of these, 16 per cent. gave a negative pulmonary roentgenogram, while 68 per cent. showed peribronchial evidence and 16 per cent. parenchymatous. Of the incipient cases (seventy-eight) the roentgen ray failed to show a lesion in 9 per cent.; while 42 per cent. gave evidences of the peribronchial and 49 per cent. of the parenchymatous type. Of the moderately advanced cases (120) 2 per cent. failed to give any roentgen-ray evidence; 8 per cent. gave peribronchial shadows, and 90 per cent. showed evidences of parenchymatous change. In 28 per cent. of the cases the area involved was grossly the same. In 54 per cent. the roentgen ray showed a much larger area involved, while in 18 per cent. the physical signs were present over a greater area than the roentgen ray showed. In 17 per cent. the physical signs showed a lesion on one side or the other which was not detected by the roentgen ray. The physical signs in these cases were largely found at the right apex and at the bases. In 32 per cent. the roentgen ray showed a lesion on one side or the other not demonstrable by physical signs. In 6 per cent. of the cases the lesions as detected by physical signs and roentgen ray were on opposite sides. In 5 per cent. the physical signs were on the right and the roentgen-ray lesion on the left, and in 1 per cent. the reverse was the case. The authors are convinced that the roentgen ray is of great value in the diagnosis of early cases without definite physical signs. Furthermore, much more accurate knowledge of the extent of the disease and the nature of the pathology is obtained by the use of the roentgen ray.

Arkansas Medical Society Journal, Little Rock

February, 1918, **14**, No. 9

38 Placenta Praevia. L. T. Evans, Mount Pleasant.—p. 181.
39 Squint; Importance of Early Correction. R. H. T. Mann, Texarkana.—p. 183.
40 Diagnosis of Surgical and Neurotic Borderline Cases. J. N. White, Texarkana.—p. 184.

Boston Medical and Surgical Journal

Feb. 28, 1918, **178**, No. 9

41 *Back Troubles. H. W. Marshall, Boston.—p. 279.
42 *Lithiasis with Bilateral Renal Involvement. W. F. Braasch, Rochester, Minn.—p. 292.
43 Fractures of Neck of Femur; Report of Three Cases. C. E. Ayers, Worcester.—p. 298.

41. **Back Troubles.**—Among the 100 cases analyzed by Marshall there were 33 cases of hypertrophic arthritis of the spine. Fourteen cases had to be diagnosed from clinical appearances without roentgen rays; 19 cases had roentgenograms taken some time during their course of hospital visits. These showed the following results: six were negative for hypertrophic changes; 13 were positive for hypertrophic changes; 5 showed vertebral variations; 1 showed metastatic new growth of vertebrae; 1 showed beginning tuberculosis of spine; 1 showed a probable fracture of vertebra. Eight cases were associated with traumas at onset of symptoms. Eight cases were considered back strains also, at some time during their course. No diagnosis of infectious arthritis was made, although numerous foci were present. The average age of these 33 patients was 49 years. Thirty-four cases of infectious arthritis of the spine.—Twenty-one cases were diagnosed from clinical histories, without roentgen rays; 13 cases had roentgenograms taken which showed the following results: 6 showed positive hypertrophic bony changes; 3 showed vertebral variations; 3 showed obscure bony lesions. Four cases were considered to represent back strains also, at some time during their course. Two cases were associated with traumas at onset of symptoms. The average age of these 34 patients was 33 years. Thirty-three cases of back strains.—Twenty-four cases were diagnosed from clinical histories without roentgen rays. Nine cases had roentgenograms taken which showed the following results: 1 showed definite hypertrophic bony changes; 6 showed vertebral variations; 1 suggested spinal tuberculosis; 1 suggested a fracture of a vertebra. Nine cases were associated with definite traumas at onset. Nine cases had foci of infection which justified a diagnosis of infectious arthritis. The average age was 33 years.

42. **Lithiasis with Bilateral Renal Involvement.**—In 17.2 per cent. of the sixty patients in this series there was bilateral renal involvement. The percentage of bilateral lithiasis was 12.3. Pain in bilateral nephrolithiasis was unilateral in 64 per cent. and absent in 8 per cent. of the cases. Bilateral stones were found most frequently in the pelves and calices. Combined renal functional tests were of practical value only when normal or extremely low. To ascertain the comparative degree of function in the two kidneys, the functional test was of value only when it was zero or a trace, normal or excessive. The functional test, roentgen-ray examination and cystoscopic inspection may be insufficient in determining the degree of healthy renal tissue remaining, and exploration only can determine this. Indications for operation: (*a*) The kidney with acute complications should be operated on first; (*b*) without acute complications the kidney with the better function should be operated on first; (*c*) occasionally simultaneous bilateral operation is advisable. Patients may be inoperable because of renal insufficiency, secondary infection, kidney destruction or constitutional complications. Patients with large bilateral stones causing no symptoms or complications are better off without operation. The operative mortality in this series was zero; the total number of deaths after operation, ten; these patients died less than a year following operation. The recurrences in cases of bilateral nephrolithiasis was 20 per cent.; in unilateral lithiasis it was 10 per cent.

When there is stone in one kidney the most common forms of disease in the opposite kidney are: pyelonephritis, pyonephrosis and hydronephrosis. With unilateral lithiasis the opposite kidney may be so badly diseased that a preliminary operation may be advisable on that kidney. Stone secondary to pyelonephritis, when removed, prevents further renal destruction but is not of curative value. When the nephritic element predominates, removal of the stone is not of much therapeutic value. A single kidney has a great degree of tolerance for repeated operation for stone. In a single kidney the phenolsulphonephthalein output usually remains high in spite of the presence of an uncomplicated stone which is probably due to compensatory hypertrophy. Fused or horseshoe kidneys permit of repeated operation for lithiasis which may, if necessary, include heminephrectomy.

Bulletin of Johns Hopkins Hospital, Baltimore

February, 1918, **29**, No. 324

44 Interstitial Pregnancy; Report of Case. H. M. U. Wynne, Baltimore.—p. 29.
45 *Transplantation of Trachea. W. C. Burket, Baltimore.—p. 35.
46 Experiments in Artificial Production of Amyloid. K. Hirose, Baltimore.—p. 40.

45. **Transplantation of Trachea.**—With the purpose in view of the possible utilization of a tracheal transplant in human cases in which a portion of the trachea has been resected on account of malignant disease, Burket undertook to study the transplantation of the trachea in dogs. The animals were kept under ether anesthesia by mouth or through a tracheotomy wound. The tracheal segments from the different sized animals were readily adapted in size to one another because of the anatomic fact that the cartilaginous portion of the tracheal rings was not complete and the posterior wall was formed of fibroelastic tissue. After operation five of the animals had a hoarse voice, a dry cough, and a rather stiff neck, which, when walking, they would occasionally shake from side to side, especially in the case of the dogs with the long transplants. Although otherwise their general condition remained very well, yet after from one to three weeks they developed marked symptoms of tracheal obstruction with dyspnea, and died. Necropsy revealed a normal esophagus and lungs, and a stricture of the trachea at the site of the transplant. In these unsuccessful cases, the dogs with the short tracheal transplants lived from one to two weeks, while the animals with the long transplants lived approximately three weeks. The cases of isotracheal transplants resulted in death with symptoms similar to the unsuccessful cases of autotransplants, and necropsy showed normal lungs with stricture of the trachea at the region of the transplant. The three successful transplant cases showed no symptoms and gave every evidence that they were as healthy and normal as before operation.

Canadian Medical Association Journal, Toronto

February, 1918, **8**, No. 2

47 Anthrax in Man; Report of Two Cases. C. H. Gilmour and A. R. Campbell.—p. 97.
48 Suprapubic Prostatectomy. N. H. Beal, London, Ont.—p. 108.
49 Surgical Treatment of Pernicious Anemia. C. K. P. Henry, Montreal.—p. 115.
50 Minor Infections and Quarantine. T. H. Whitelaw, Edmonton.—p. 122.
51 How Medical Health Officer Can Become Cooperative Social Force in Rural Districts. P. H. Bryce, Ottawa.—p. 129.
52 Development of Hemorrhagic Disease Following Injury to Liver. E. M. von Eberts, Montreal.—p. 139.
53 Case of Anthrax of Face. C. K. P. Henry and W. J. Scott.—p. 142.

Georgia Medical Association Journal, Augusta

February, 1918, **7**, No. 10

54 Roentgen Ray Therapeutics; Report of Cases. T. B. King, Sandersville.—p. 201.
55 Emergency Head Surgery. C. E. Dowman, Atlanta.—p. 206.
56 Urinary Symptoms in Female. R. L. Rhodes, Augusta.—p. 211.
57 Major Operations Under Local Anesthesia. W. A. Selman, Atlanta.—p. 212.
58 Septic Infarcts of Kidney. G. R. White, Savannah.—p. 215.
59 Significance and Diagnosis of Conditions Causing Blood in Urine. E. P. Merritt, Atlanta.—p. 217.
60 Specialization, What Does It Mean? W. B. Emery, Atlanta.—p. 219.

Iowa State Medical Society Journal, Des Moines

February, 1918, **8**, No. 2

61 Typhoid in Iowa. M. Levine and H. E. Middleton, Ames.—p. 37.
62 Nontuberculous Infections of Kidney. M. J. Moes, Dubuque.—p. 41.
63 Tumors of Kidneys. R. E. Green, Creston.—p. 43.
64 Renal Functional Tests and Pyelography in Kidney Diagnosis. N. G. Alcock, Iowa City.—p. 45.
65 Surgical Conditions of Kidney. C. J. Rowan, Iowa City.—p. 49.
66 Diagnosis of Chronic Bone Lesions. A. Steindler, Iowa City.—p. 53.

Journal of Cutaneous Diseases, Chicago

February, 1918, **36**, No. 2

67 Etiology and Pathology of Skin Cancer. F. G. Harris, Chicago.—p. 67.
68 Treatment of Skin Cancer. G. M. MacKee, New York.—p. 92.
69 Case of Darier's Disease (Keratosis Follicularis); Roentgen Ray Treatment. A. Schalek, Omaha.—p. 104.

Journal of Laboratory and Clinical Medicine, St. Louis

February, 1918, **3**, No. 5

70 *Methods of Control of Clothes Louse [Pediculus Humanus Vestimenti]. W. Moore, St. Paul, Minn.—p. 261.
71 *Etiology of Scarlet Fever. R. W. Pryer and J. B. Kelly, Detroit.—p. 269.
72 *Factors of Coagulation in Blood in Certain Pathologic Conditions. D. F. Pettibone, Rochester, Minn.—p. 275.
73 *Chronic Tonsil Infections. J. J. Moore, Chicago.—p. 283.
74 *Rapid Colorimetric Method for Estimating Glucose in Urine. V. I. Isaacson, New York.—p. 289.
75 Serum Veal Agar; Dependable Substitute for Ascitic or Blood Agar. N. S. Ferry and A. Noble, Detroit.—p. 295.
76 Peptone Free Media for Routine Culture Work. N. S. Ferry and A. Noble, Detroit.—p. 298.
77 *Simple Test for Glycuronates in Urine. F. C. Askenstedt, Louisville, Ky.—p. 300.
78 Antigen for Use in Complement Fixation in Tuberculosis. M. S. Fleisher and G. Ives, St. Louis.—p. 302.

70. **Control of Clothes Louse.**—Moore shows that sachets are not successful. Talc, 20 gm.; creosote, 1 c.c., and sulphur, 0.5 gm., is six times as effective a louse powder as naphthalene, creosote and iodoform, causing less irritation to the skin and, being dry, is easier to apply. Impregnation of the underwear does not appear promising, but a cheesecloth suit impregnated with saturated solution of sulphur in creosote could be successfully worn outside the underwear. Chlorpicrin can be used as a fumigant, penetrating the clothing and killing the lice in all parts of the clothing in fifteen minutes and the eggs in thirty minutes. By increasing the heat in the fumigation chamber, the time required to kill the eggs could be reduced.

71. **Etiology of Scarlet Fever.**—The blood of twenty-four cases showing typical symptoms of scarlet fever was examined by Pryer and Kelly. In nineteen, or 79 per cent., of these cases a diphtheroid organism has been isolated in pure culture. In six normal individuals a diphtheroid organism, morphologically and culturally identical with the one isolated from the nineteen cases of scarlet fever, was isolated from the blood of four. In cases of disease other than scarlet fever this organism was found in one case of measles, and two out of five cases of diphtheria. A large polymorphic organism was isolated from the blood of a man dying of scarlet fever.

72. **Coagulation of Blood in Certain Pathologic Conditions.**—Among the 45 cases studied by Dorothy Pettibone are 2 of hemophilia, 7 of myelogenous leukemias, 2 of purpura, 9 of epilepsy, 12 of jaundice (10 obstructive and 2 hemolytic) and 13 of a miscellaneous group. There was a marked calcium deficiency in jaundice cases of several weeks' duration. Platelets were present in normal numbers. The blood of hemorrhagic purpuras was deficient in platelets. There was no retraction of the clot. Estimation of platelets was of value in differentiating between hemorrhagic purpuras and hemophilias. The coagulation time of epileptic blood was within normal limits. Prothrombin was slightly diminished in pernicious anemia. There was a tendency in myelocytic leukemias for prothrombin time to be prolonged beyond the normal limits of from six to fourteen minutes, although the coagulation time was within normal limits. There was a characteristic delay in coagulation in the blood of hemophiliac cases. There was also deficiency in prothrombin. Platelets were present in normal numbers and have normal retractile powers. There was apparently no deficiency in calcium. One patient of special note among the hemophilias had an extremely long coagulation time though his prothrombin time was within normal limits. His mother had a normal coagulation time but a markedly delayed prothrombin time.

73. **Chronic Tonsil Infections.**—Moore cites examples which suggest that the infectious organism or virus of many diseases which have as their portals of entry the upper respiratory system, may lodge either permanently, or for a long period in the crypts of the tonsils, thus producing the state which we term a "chronic carrier." The removal of the infected tonsil may aid materially in controlling such diseases.

74. **Colorimetric Estimation of Glucose in Urine.**—This method depends on the fact that alkaline copper sulphate solutions are reduced by glucose at higher temperatures. The quantity of copper sulphate reduced is computed indirectly by determining the amount left unreduced. This latter portion is measured in a colorimeter by comparing the intensity of its blue ammonia compound with a standard solution of the same substance.

77. **Simple Test for Glycuronates in Urine.**—Askenstedt's test combines simplicity with a fair degree of accuracy. The urine to be examined is diluted with water until its specific gravity is reduced to 1.001. For example, if the urine has a specific gravity of 1.015 (correction being made for temperature), dilute 1 c.c. of urine with 14 c.c. of water; if the specific gravity is 1.021, dilute 1 c.c. with 20 c.c. of water. (Diabetic urine should be diluted until its urea content is 0.1 per cent.). To 10 c.c. of the diluted urine in a test tube add 1 or 2 drops of a 1 per cent. solution of alphanaphthol in glycerin (alcohol impairs the test), and then 10 c.c. hydrochloric acid, specific gravity 1.19. Mix by turning the tube over once or twice. Then let the tube stand in a dark, cool place for about twelve hours, after which the reaction is noted in reflected light. This is best done by holding a white surface, as, for example, a white blotter, behind the tube. Normally the fluid will remain colorless or show a mere suggestion of blue. If glycuronates are present in excess, there will appear a proportionate blue color, tinged with red. The depth of the color may be denoted by the customary use of plus signs, medium blue, the deepest color observed in the above dilution, being designated with + + + +. If greater accuracy of estimation is desired, a standard solution of indigo blue, containing some indigo red, in sulphuric acid, may be employed by dropping it into another test tube of the same size, containing 20 c.c. of water. The tube receiving the standard solution is turned over after each drop is added and comparison of the two tubes is made, this procedure being continued until the nearest likeness of color is obtained, when the number of drops added is recorded. In twenty-four hours, or later, a slight cloudiness, with fading of color, appears ultimately forming a sediment.

Journal of Nervous and Mental Diseases, Lancaster, Pa.

February, 1918, **47**, No. 2

79 *Tabes Dorsalis. M. Grossman, New York.—p. 81.
80 *Treatment of Delirium Tremens by Spinal Puncture, Stimulation and Use of Alkali Agents. H. H. Hoppe, Cincinnati.—p. 93.
81 Meningitis Due to Shell Wound. C. B. Craig.—p. 100.
82 Dystonia Musculorum Deformans; Report of Case and Review of Literature. M. Kerschner, Brooklyn.—p. 103.
83 Consideration of Pathogenesis of Epilepsy. L. J. Pollock, Chicago.—p. 114.
84 *Some Experiments Bearing on Flow of Lymph in Nerves. L. B. Alford and S. I. Schwab, St. Louis.—p. 118.

79. **Tabes Dorsalis.**—Grossman's paper is based on the study of 240 cases of undoubted tabes. The average age of syphilitic infection, dated from the primary chancre, was 24.4 years. The average age of onset of tabes was 39 years. No detectable difference existed in the age of onset of tabes in those patients treated with antisyphilitic remedies and in the age of onset in those untreated or presumably less treated.

The probable average preataxic period is three years. The average life expectancy of the bedridden tabetic was 53 years. Among those tabetics who become bedridden, a short ataxic period usually follows a short preataxic period. The cause of death in tabes is syphilis. Syphilis and tabes lead to death through cardiovascular and renal degeneration, and through weakened resistance of nonsyphilitic infections. The average age at which death occurs is 53 years. The mortality among tabetics over 53 years of age is 238 per thousand. Tabes is as nonlethal as any form of syphilis.

80. **Treatment of Delirium Tremens.**—Following is the routine treatment for delirium tremens employed by Hoppe in the Cincinnati General Hospital. Catharsis is used as a routine measure, calomel, followed by a rather large dose of epsom salts. Tincture of digitalis and tincture of nux vomica, 10 drops of each, are given by mouth every three hours. In the active state of delirium strychnin and digitalin are given hypodermatically. Hoppe says that this stimulation is the most essential part of the treatment. In mild cases the indication for alkalies is met by the use of the imperial drink with lemon juice. Prolonged hot baths and hot packs are given twice a day, chloral and bromids are given only at night, and then not more than 2 to 3 doses during the twelve hours. In ordinary mild cases of delirium tremens, uncomplicated with kidney trouble, the above treatment is sufficient and the disease runs a very mild course. In the more severe cases, and at present a routine treatment, spinal puncture is resorted to as soon as the patient begins to have hallucinations. From 30 to 60 c.c. are usually withdrawn. The withdrawing of the fluid is followed by a rapid reduction of the delirium, especially in cases which have had preliminary stimulation and alkalinization. If the delirium returns, spinal puncture is repeated. If the delirium still continues notwithstanding the spinal puncture, or if the patient is pale and covered with perspiration with a low muttering delirium, an intravenous injection of physiologic sodium chlorid solution is given, or what has been found to be of more use, especially in cases with frequent convulsions and deficient kidney function, Fisher's solution. Of 105 cases, which seemed clinically uncomplicated, eight patients died, a mortality of 7.6 per cent. During the previous ten years, when the routine treatment was catharsis and sedatives, the mortality was 18.5 per cent.

84. **Flow of Lymph in Nerves.**—The hypothesis that there is a flow of lymph along nerve trunks in a central direction has been advanced and has been used in explaining the situation of the lesion in paresis, tabes dorsalis, herpes zoster and other affections of the nervous system, and in accounting for some of the facts of tetanus, rabies and poliomyelitis. It is supported by the results of a number of experiments. In attempting to repeat and amplify some of these experiments, Alford and Schwab injected a solution of certain iron salts, and of fuchsin, India ink, turpentine, and ether into nerve trunks of animals, but found no evidence of the existence of an ascending lymph stream. It was found, however, that when certain substances, particularly turpentine and ether, are injected into nerve trunks, they flow along under the sheath for long distances and may enter the subarachnoid and subdural spaces. This fact, and not the presence of an ascending lymph stream, may account for some results of other observers. It was also found that ether injected into infra-orbital branches in the cheeks passes into and causes a degeneration of the Gasserian ganglion. It is suggested by the authors that this method might be used in the treatment of trifacial neuralgia.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

February, 1918, **11**, No. 1

85 *Comparative Activity of Local Anesthetics. I. Paralysis of Sensory Nerve Fibers. T. Sollmann, Cleveland.—p. 1.
86 *Id. II. Anesthesia of Frog Skin. T. Sollmann, Cleveland.—p. 9.
87 *Id. III. Anesthesia of Rabbit's Cornea. T. Sollmann, Cleveland.—p. 17.
88 *Influence of Diet on Toxicity of Sodium Tartrate. W. Salant and A. M. Swanson, Washington, D. C.—p. 27.
89 Protective Action of Diet Against Tartrate Nephritis. W. Salant and A. M. Swanson, Washington, D. C.—p. 43.
90 *Action of Iodid, Bromid and Nitrate Ions on Respiratory Center. D. I. Macht and D. R. Hooker, Baltimore.—p. 63.
91 Comparative Efficiency of Local Anesthetics. Anesthesia of Human Skin. T. Sollmann, Cleveland.—p. 69.
92 Action of an Isomer of Caffein. W. Salant and H. Connet, Washington, D. C.—p. 81.
93 *Clinical Actions of Veratrum. R. J. Collins and P. J. Hanzlik, Cleveland.—p. 89.

85 to 87. **Activity of Local Anesthetics.**—I. The activity of anesthetics on sensory nerve fibers was studied by Sollmann by applying the anesthetics to the sciatic plexus and observing the presence or absence of reflex response to stimulation of the foot. He found that cocain, novocain and tropacocain hydrochlorids are about equally efficient. The efficiency of potassium, alypin, quinin-urea, and especially antipyrin, is smaller; and their efficiency ratio in comparison with cocain is lower than for motor fibers. Alkalization increases the efficiency of the organic anesthetic from two to eight times; the increase being generally about one half as much as for motor fibers. Epinephrin does not increase the efficiency; this result being the same as with the motor fibers. Mixtures of cocain with novocain hydrochlorid or with quinin-urea hydrochlorid give simple summation without potentiation, just as with the motor fibers. Mixtures of the anesthetics with potassium do not show potentiation, differing in this respect from motor fibers. Apparently, therefore, the sensory fibers show some important differences from motor fibers in their response to local anesthetics.

II. Sollmann shows that the application of the anesthetics to the skin of the frog's foot approaches the conditions of surface anesthesia, involving penetration of the drug as well as action on the sensory fibers; but somewhat simplified by doing away with the absorptive removal of the drug. The results differ in some important respects from those of direct immersion (conduction anesthesia). The efficiency ratios for the frog skin are different for prompt and for slow anesthesia. Cocain, alypin and tropacocain make the best showing. Novocain is relatively less efficient than for conduction anesthesia; potassium, quinin-urea and antipyrin make a very poor showing for fast anesthesia; much better for slow anesthesia. Alkali increases the efficiency, even more than for immersion. Epinephrin does not increase the efficiency. Mixtures of cocain with novocain or quinin do not potentiate; nor do mixtures of potassium with cocain or novocain.

III. The application of anesthetics to the cornea is a satisfactory method for comparing their efficiency as surface anesthetics. The order of efficiency is markedly different from immersion or conduction anesthesia. On the cornea, cocain and holocain are the most efficient; then follow beta-eucain, alypin, quinin-urea and tropacocain, and lastly, novocain. Antipyrin and potassium are practically ineffective. The rapidity and the duration of the action vary with the concentration. For just effective concentrations, the duration is shortest with cocain and tropacocain, and longest with quinin-urea. The addition of sodium bicarbonate (0.25 per cent.) increases the efficiency of the anesthetics considerably (two to four times); with the exception of quinin-urea, which is rendered less efficient. Epinephrin does not increase the efficiency. Mixtures of the anesthetics with each other or with potassium, do not lead to potentiation. Sollmann's experimental data are in agreement with the clinical usage.

88. **Influence of Diet on Toxicity.**—An analysis of the results obtained by Salant and Swanson in this investigation shows that the mode of action of some diets and of fasting in modifying the toxicity of tartrate cannot be explained at present. The toxicity of sodium tartrate was most marked on a diet of oats, hay and cabbage. Diets rich in sugar were efficacious in decreasing toxicity, the effect being most pronounced on a diet of young carrots. A marked increase of resistance to tartrates was also observed on a diet of carrot leaves. The authors suggest that the favorable effects of some diets on the toxicity of tartrates might be due to several factors, among them inhibition of bacterial activity in the intestine, vitamins, or unknown constituents that might be present in some diets.

90. **Action of Iodids and Bromids.**—From the experiments described by Hooker and Macht it may be concluded that the iodid, bromid and nitrate ions exert a stimulating effect on the respiratory center. In case of the iodids this agrees well with the stimulating effect of the iodid ion noted by Macht on the isolated heart and blood vessels (3); and in case of the nitrate the results agree also very well with the difference between the action of the nitrates and nitrites noted by the same author on the ureter (4). This effect of the various ions studied and more particularly of the iodids and bromids is of considerable interest from the therapeutic point of view, inasmuch as iodids and bromids are extensively employed in pathologic respiratory conditions.

93. **Clinical Actions of Veratrum.**—The series of cases studied by Collins and Hanzlik includes two normal individuals, and a total of thirty-six observations on twenty-seven different subjects representing such circulatory disorders as hypertonus, paroxysmal tachycardia, myocarditis with renal vascular disease, aortic insufficiency, auriculoventricular heart block and several other clinical conditions. Briefly, it may be said that a slowing of the pulse and fall of blood pressure occurs with single therapeutic doses of 15 to 20 minims of the tincture of veratrum album and this occurs independently of such symptoms as nausea, vomiting, etc. (toxicity). Large and repeated doses (25 to 75 minims) produced a slowing of the pulse together with a fall in both systolic and diastolic blood pressure in practically all individuals studied by the authors. The fall of blood pressure and diminution in pulse rate are roughly proportional to the dose. All the desirable circulatory effects produced by tincture of veratrum album may be secured with doses ranging from 45 to 55 minims, administered at the rate of about 10 to 15 minims every one-half to one hour, and without symptoms of toxicity. Repeated large doses administered within short intervals are apt to give rise to symptoms of toxicity. These effects are generally absent with small doses given at longer intervals. Two normal individuals responded to tincture of veratrum album with a fall of systolic and diastolic blood pressure and a slowing of pulse rate in the usual way. Effects in various circulatory disorders were observed about as follows: most marked in hypertonus; less marked, inconstant or no effect at all in heart block (two cases), paroxysmal tachycardia, myocarditis with renal vascular disease, aortic insufficiency (one case each). The usual effects of slowing of the pulse and fall of both systolic and diastolic blood pressure were observed in a patient with eclampsia. A number of miscellaneous clinical conditions also responded in the usual way. There were no demonstrable effects on the electrocardiogram. No noteworthy effects with both small and large doses of veratrum album were observed on the respiration. Using compound tincture of gentian (U. S. P.) under the same conditions as tincture of veratrum album in the same and other individuals, no noteworthy effects on the circulation were demonstrable. The effects of veratrum are due, therefore, to the drug per se.

Kentucky Medical Journal, Bowling Green

March, 1918, **16**, No. 3

94 Plea for Better Diagnoses. R. M. Rankin, Covington.—p. 95.
95 Duties and Opportunitities of Medical Reserve Corps Officer. R. Lockhart, Owensboro.—p. 100.
96 History of Surgical Anesthesia and Discoverer. J. W. Barnhill, Owensboro.—p. 103.
97 Worms. T. T. Gibson, Middlesboro.—p. 105.
98 Pellagra. S. J. H. Harris, Philpot.—p. 106.
99 Amebic Dysentery; Results Obtained from Use of Emetin. E. S. Allen, Louisville.—p. 108.
100 Eye as Index in Certain Diseases. C. T. Wolfe, Louisville.—p. 110.
101 Public Health. R. Oleson, Louisville.—p. 116.
102 Antepartum Hemorrhage, Gas Bacillus Infection, Milk Leg in Same Patient. W. Sanders, Louisville.—p. 119.
103 Recurrent Laryngeal Paralysis from Aortic Aneurysm. I. A. Lederman, Louisville.—p. 121.

Maine Medical Association Journal, Portland

February, 1918, **8**, No. 7

104 Late Visceral Syphilis. T. J. Burrage, Portland.—p. 187.
105 Halifax Disaster. T. A. Foster, Portland.—p. 199.

Medical Record, New York

March 2, 1918, **93**, No. 9

106 Problem that Mental Disorders Present to Medical Profession, and Profession's Responsibility. W. B. James, New York.—p. 353.
107 Eyes of Youth. S. E. Jelliffe and L. Brink, New York.—p. 366.
108 Cancer Death Rate in New York City During 1917. L. D. Bulkley, New York.—p. 362.
109 Masked Pellagra. J. F. Yarbrough, Columbia, Ala.—p. 363.
110 Parkinson's Disease and Its Treatment with Parathyroid Gland. W. N. Berkeley, New York.—p. 365.
111 Unstable Qualities of Digitalis Preparations. E. Zueblin, Cincinnati.—p. 366.

New York Medical Journal

March 2, 1918, **108**, No. 9

112 Relation of Tooth Infection to Other Diseases. O. T. Osborne, New Haven, Conn.—p. 385.
113 Hyperthyroidism and Mental Disorders. W. K. Walker, Pittsburgh.—p. 391.
114 Daughters of Moabites and Our Soldiers. W. L. Howard, Westboro, Mass.—p. 394.
115 Surgical Aspects of Gastric Hemorrhage. G. Woolsey, New York.—p. 395.
116 Nature of Transference in Psychanalysis. A. Stern, New York.—p. 398.
117 Case of Subdural Spinal Abscess. Posterior Lateral Laminectomy. Recovery. H. Lowenburg, Philadelphia.—p. 402.
118 Facial Paralysis Following Infection of External Auditory Canal. A. N. Schiller, New York.—p. 403.

New York State Journal of Medicine

February, 1918, **18**, No. 2

119 Syphilis of Eye. W. C. Posey, Philadelphia.—p. 48.
120 Syphilis of Ear. B. A. Richards, Rochester.—p. 52.
121 Intracranial Treatment of Syphilis of Optic Pathways and Optic Atrophies. M. J. Schoenberg, New York.—p. 59.
122 *Treatment of Syphilis of Brain and Cord by Subdural Injections of Salvarsanized Mercurialized Serum. S. T. Nicholson, Clifton Springs.—p. 63.
123 Gallbladder Disease. R. S. Fowler, Brooklyn.—p. 72.

122. Abstracted in The Journal, June 2, 1917, p. 1657.

South Carolina Medical Association Journal, Greenville

February, 1918, **14**, No. 2

124 Postoperative Treatment of Gastro-Intestinal Tract Following Abdominal Section. J. Wallace, Easley.—p. 36.
125 Diagnosis of Urinary Lithiasis. N. B. Edgerton, Columbia.—p. 38.

Texas State Journal of Medicine, Forth Worth

February, 1918, **13**, No. 10

126 Fibrosis Uteri. W. B. Russ and H. T. Wilson, San Antonio.—p. 346.
127 Diagnosis of Nephritis. K. H. Beall, Fort Worth.—p. 349.
128 Kidney of Pregnancy. I. L. Van Zandt, Fort Worth.—p. 351.
129 Significance of Casts in Urine. F. R. Lummis, Houston.—p. 353.
130 Influence of Minute Foreign Bodies within Eye. J. O. McReynolds, Dallas.—p. 355.
131 Student's Expectancy on Entering Medical College. M. H. Boerner, Austin.—p. 356.
132 Pemphigoid Eruptions Following Vaccination. J. B. Shelmire, Dallas.—p. 358.

Vermont Medicine, Rutland

February, 1918, **3**, No. 2

133 Pneumonia and Serum Therapy. E. H. Buttles, Burlington.—p. 27.
134 Goiter. F. H. Lahey, Boston.—p. 30.
135 Vital Thyroid, Parathyroid Activities. C. F. Ball, Rutland.—p. 33.

West Virginia Medical Journal, Huntington

January, 1918, **12**, No. 7

136 Medical Economics. I. J. Haynes, Richmond.—p. 241.
137 Nitrous Oxid and Oxygen in Obstetrics. C. S. Fleming, Fairmont.—p. 246.
138 Ptomain Poisoning. A. Lederer, Morgantown.—p. 248.
139 Medical Preparedness in Great Drive for Democracy. J. C. Bloodgood.—p. 255.

February, No. 8

140 Variations in Lateral Processes of Fifth Lumbar Vertebra in Etiology of Backache. H. A. Wilson, Philadelphia.—p. 281.
141 Diagnosis and Treatment of Urinary Lithiasis. J. E. Burns, Baltimore.—p. 286.
142 Roentgen Ray Examination of Duodenum, Gallbladder and Pancreas. W. A. Quimby.—p. 291.
143 Cellular Determination of Sex. P. J. McElrath, Bramwell.—p. 297. To be continued.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

January, 1918, **11**, No. 3

1 Chilomastix Mesnili. A. J. Chalmers and W. Pekkola.—p. 213.
2 Nocardia Cylindracea; South Africa Otomycosis. W. E. De Korté. p. 265.
3 Tsetse Flies and Fly Belts. C. Christy.—p. 279.
4 *Quinin Treatment of Tertian Malaria. J. W. W. Stephens and Others.—p. 283.

4. **Malaria Treated by Quinin.**—The effect of 15 grains of quinin sulphate given by the mouth on two consecutive days was studied by the authors; further, in order to ascertain the effect of the magnitude of the dose, a series of observations was made with the following doses on two consecutive days: 5, 10, 30, 60 and 90 grains. So far as possible, such cases as did not relapse were observed for a period of at least sixty days after treatment in order to determine the curative value of the respective treatments. As a general rule, it may be stated that the administration of quinin sulphate on two consecutive days in doses as low as 10 grains suffices to cut short an attack of simple tertian malaria and to cause the temporary disappearance of parasites, trophozoites and gametes from the cutaneous blood. This also holds good for a series of cases treated with 5 grains of bihydrochlorid, but in four of the twelve cases in the 5 grains of sulphate series the parasites did not disappear. Regarded from the curative point of view, that is, the prevention of relapse, no success was obtained when the dosage was less than 45 grains. When this dosage was reached a curative value became appreciable: thus in the 45 grains series 25 per cent. of cases did not relapse, in 60 grains series 42 per cent., and in the 90 grains series 62 per cent. The observation period in the cases which did not relapse was at least sixty days.

British Medical Journal, London

Feb. 9, 1918, **1**, No. 2980

5 Possible Pitfalls in Life Assurance Examination. F. P. Weber.—p. 167.
6 Two Years' Experience of Septic Wounds in Duncombe Park V. A. D. Hospital. A. Blair.—p. 169.
7 Technic of Carrel-Dakin Treatment. G. E. McCartney and F. H. H. Mewburn.—p. 170.
8 *Treatment of Wounds by Flavine. E. M. Pilcher and A. J. Hull. —p. 172.
9 Wound Flora in Relation to Secondary Suture. A. R. Munroe, A. G. Fleming and R. M. Janes.—p. 173.
10 Value of Mixture of Cyllin, Iodoform and Olive Oil in Intrathoracic Sepsis. W. Gordon and M. E. Gates.—p. 173.
11 *Mutton Bird (Sooty Petrel) Oil. J. S. Purdy.—p. 174.

8. **Treatment of Wounds by Flavine.**—Two main theses are proposed by Pilcher and Hull: First, a comparison is made between flavine and Carrel-Dakin treatment, in which the former, though not inferior at all points, is yet made, on the criteria chosen, to take a second place; and secondly, by histologic examination flavine is shown to delay the process of repair, to allow organisms to remain on the wound surface, and to prevent epithelial ingrowth. The authors hold that, putting aside any question of the permanence and effectiveness of the antiseptic solution used in the Carrel-Dakin treatment (though this has been called in question), the method itself is not of universal application, entirely on account of its inherent difficulties of technic. If this is allowed, any simpler method which can be effectively used by less skilled workers, and which approaches in efficiency, as judged by the suture standard, the Carrel-Dakin method, is worthy in spite of minor drawbacks, of an extended trial in the army.

Results which can only be obtained by an expert with much time and comparatively few cases are contrasted with a method which is practically fool proof; any dresser can fill a wound cavity with gauze dipped in 1 in 1,000 solution of flavine. In the many hundreds of cases (rather more than 5,000) so treated in the hospitals under the command of one of the authors, they have found that for ease of preparation and application, rapidity when dealing with large numbers of cases, complete absence of surgical fidget, early cleaning of the wounds, and abatement of constitutional reaction to absorption, flavine (and its congener brilliant green) is an admirable application under all circumstances, but especially where surgeons are few, time is short, and wounds are many. But, even when contrasted with the Carrel-Dakin series of fifty flavine cases does not come badly out of the test. The temperature falls early; more than one third reach the difficult suture ideal; and though there is delay in the process of healing, there is some diminution in the local and general reaction to infection. The lethal concentration of flavine against cocci in the presence of serum being 1 in 200,000 (Browning), the authors find the addition of hypertonic saline solution a valuable adjunct to the action of the antiseptic by producing free exudation.

11. **Mutton Bird Oil.**—According to Purdy the oil extracted from the sooty petrel is not only an excellent substitute for, but, in the opinion of some, more effective in the treatment of bronchitic conditions and phthisis than cod liver oil.

Edinburgh Medical Journal

February, 1918, **20**, No. 2

12 John Hunter's Free Martin. D. B. Hart.—p. 84.
13 Cerebrospinal Fever. P. W. Maclagan.—p. 93.
14 Three Cases of Axillary Vein Obstruction. R. J. Willan.—p. 105.
15 Scurvy in Infants. A. D. Fordyce.—p. 110.

Journal of Tropical Medicine and Hygiene, London

Feb. 1, 1918, **21**, No. 3

16 *Case of Larbish or Oerbiss Observed in Northern Nigeria. J. W. S. MacFie.—p. 25.
17 Symptomatology and Treatment of Human Trypanosomiasis in Lusanga Area, District Dukwango, Belgian Congo. W. E. Masters.—p. 25.

16. **Case of Larbish or Oerbiss.**—Larbish is a form of "creeping eruption" occurring in French Senegal first described by Bérenger-Féraud in 1875. MacFie reports a case. The disease is due to the presence of dipterous larvae under the skin. No parasites have hitherto been found, and the cause of the condition is at present unknown.

Lancet, London

Feb. 9, 1918, **1**, No. 4928

18 *Acidemia in Gas Gangrene, and on Conditions Which Favor Growth of Its Infective Agent in Blood Fluids. A. E. Wright and A. Fleming.—p. 205.
19 Introduction of Modern Practice of Bone Grafting. A. Keith. —p. 210.
20 *Painful Neuritis Resulting from Wounds of War. J. A. Sicard. —p. 213.
21 Intussusception; Report of Cases. H. W. G. Mackenzie and W. H. Battle.—p. 215.
22 Vibrating Sensation in Differential Diagnosis of Affections of Spinal Cord and Peripheral Nerves. R. T. Williamson.—p. 216.
23 Method of Estimating Vibratory Sensation. J. L. M. Symns. —p. 217.

18. **Acidemia in Gas Gangrene.**—Observations made by Wright and Fleming confirm and bring into clearer light the fact that the growth of the microbes of gangrene is favored by every reduction of blood alkalinity, and they suggest that wherever, as in the dead body and the muscles, we come on conditions which specially favor the growth of the gas gangrene bacillus, there the factor of acidosis is likely to be the operative factor. And it has been further demonstrated that the microbes of gangrene can by elaborating acid make for themselves favorable conditions at the site of infection, and in the blood generally. The treatment of the acidemia of gas gangrene toxemia follows directly from its pathology. Wright and Fleming have employed, as is done in grave diabetic acidosis, intravenous injections of alkali, following these up, in cases in which a relapse had to be guarded against, by lactate of soda administered by the mouth in doses of 8 gm. four-hourly until the urine becomes alkaline. For the intravenous injections they have employed a 5 per cent. solution of sodium bicarbonate, preferring this for two reasons to a solution of carbonate of soda: First, for convenience of dosage, the bicarbonate being, as distinguished from the water holding carbonate of soda, a nonefflorescent salt; and, second, to guard against local injury to tissues in case of any fluid escaping from the needle during the injection. The quantity of alkaline solution chosen, that is, 500 c.cm. has sufficed to restore, or just more than restore, to the blood its

normal alkalinity. The lactate of soda—made by neutralizing lactic acid by soda—was chosen for the after-treatment both because it is very easily tolerated by the normal stomach and because it is after absorption very rapidly (in the normal man in the course of a very few minutes) converted into carbonate. On account of the nausea and vomiting at the onset of gas gangrene toxemia the oral administration of lactate of soda cannot at that stage replace intravenous injection. With regard to the after-treatment of the wound it is of fundamental importance where infected or acidosed (and because of that very easily infected) tissue has to be left behind to evacuate all the corrupted lymph, replacing it by lymph normal in alkalinity; normal, if this should come into account, in sugar content; and normal (and that in this case means equipollent with the blood fluids) with respect to antitryptic power. To this end a local lymphagogue must be resorted to — 5 per cent. salt solution.

20. **Painful Neuritis Resulting from Wounds of War.**—Sicard and his associates have treated by intraneural injection of alcohol twenty-one cases of painful neuralgia following on gunshot wounds of nerves, recovery resulting in each case. The nerve is freed and isolated from the adjacent tissue. The upper adjacent segment is uncovered, and in the middle of apparently healthy nerve tissue, about 3 to 4 cm. above the seat of the wound, a fine Pravaz needle is introduced and, with the aid of a glass syringe, there is injected about 1 to 2 c.cm. of sterilized alcohol 60, or even 80 should the neuralgia be of long standing. When the injection has been properly given it should cause a local swelling, and the nerve trunk assumes a characteristic white mother-of-pearl appearance. All the nerve trunks supplying the painful region must be injected.

Annales de Médecine, Paris

September-October, 1917, **5**, No. 5

24 *Functional Disturbances After War Wounds of the Chest. E. Sergent, P. Pruvost and P. Labro.—p. 473.
25 *Spinal Fluid in Typhus. D. Danielopolu.—p. 495.
26 The Pupils After Shell Concussion. Guillain and Barré.—p. 503.
27 *Psychoneurotic Contracture of Foot or Hand. G. Roussy, J. Boisseau and d'Oelsnitz.—p. 515. To be continued.
28 *Measurement of the Ventricles. E. Beaujard.—p. 545.
29 *Inherited Syphilis of Femur. M. Deromps.—p. 555.

24. **Nervous Disturbances After War Wounds of the Chest.**—The men had apparently completely recovered after a bullet had pierced the chest. All the organs seemed sound on roentgen and physical examination, but still the men complained of pains, unstable pulse and respiration rhythm, with constant dyspnea, exaggerated at the slightest movement. Some had neuralgia of the phrenic nerve or partial paralysis of the diaphragm; in others the pupils were irregular and unstable or there were vasomotor disturbances. Five of the ten men presented, besides, signs of exophthalmic goiter. If the projectile is no longer in the tissues, these functional disturbances usually gradually subside.

25. **The Spinal Fluid in Typhus.**—Danielopolu's experience with sixty typhus patients at Jassy has convinced him that the nervous disturbances are responsible for the deaths much oftener than the cardiac. For this reason he repeated lumbar puncture every few days, and in this communication describes the findings in the cerebrospinal fluid from twenty-four typhus patients with more or less serious nervous symptoms. In the majority of the cases the more intense nervous phenomena coincided with a high leukocyte count and a complete and pronounced reaction on the part of the meninges. The globulin reaction and the lymphocytosis seem to be the result of augmented permeability of the meninges on the one hand, and of the leukocytosis in the blood on the other hand. In some cases the leukocyte count was very high, up to 60,000, but there was no meningeal reaction and the patient did not show any serious nervous disturbances. Evidently the meninges were not much permeable. Two other patients presented from the very first grave nervous disturbances; the meninges were extremely permeable but there was pronounced leukopeny and no signs of a meningeal reaction.

27. **Psychotherapy for Contracture of Hand or Foot.**—This profusely illustrated article reviews the experiences with 141 cases of contracture or paralysis after minor wounds of the region. The article is to be continued.

28. **Measurement of the Ventricles.**—Beaujard comments on the precision now possible with screen examination of the heart, especially with the disappearance of the apex as a basis, that is, turning the body obliquely to the rays passing through the body to the posterior point of the spine, moving the left shoulder forward on the right shoulder as a pivot, until the shadow of the apex disappears behind the shadow of the vertebra on that plane. The angle between this line and the median line passing through the chest to the same posterior point in the vertebra varies with the size of the left ventricle, and can be determined with precision by placing a footrule against the front of the chest. The technic for three different applications of this principle is described with diagrams. Still greater precision is obtained by comparison with a second oblique line, parallel to the first, but just grazing the extreme right margin of the heart as the body is held obliquely to the roentgen tube.

29. **Tardy Inherited Syphilis of Long Bones.**—Deromps quotes Ménard's warning that many cases of supposed tuberculous lesions of the long bones are in reality manifestations of inherited syphilis, and thus exceptionally amenable to treatment. The roentgen rays reveal the syphilitic nature of the trouble and show its subsidence under treatment. Milian has published an instructive case of the kind, with pronounced retrogression of the periostosis under novarsenobenzol treatment, notwithstanding the old chronic nature of the bone trouble and its enormous extent. A similar case is described here, with roentgenograms showing the enlargement of the femur, its diameter the entire length being approximately the same as in the condyle region; in the other leg, only the lower end of the femur showed the enlargement. The patient was a young woman of 20 of an infantile aspect, who had had pains in the thighs for nearly six months. At the age of 5 there had been opacity of the cornea which later had retrogressed; at 15 there had been pains in the thighs for nearly a year but they then subsided for four years, returning then more violent than ever. The Wassermann reaction was positive and under novarsenobenzol great improvement followed. The patient was unable to stand iodid or mercury. Such cases call for an early diagnosis, and early and protracted treatment, regardless of the extent or long standing of the lesions. The main thing is not to be misled into assuming the tuberculous nature of the trouble.

Archives de Médecine des Enfants, Paris

February, 1918, **21**, No. 2

30 *Development of Nervous System and Brain in Young Children. A. Collin and Godet.—p. 57.
31 *Left Recurrent Paralysis and Mitral Disease. A. Carrau.—p. 77.
32 *Cervical Rib Simulating Pott's Disease. J. Renault and Romme.—p. 83.

30. **Development of the Nervous System in Children.**—Collin and Godet present evidence to show that the nervous system and the mind of young children develop in three phases. The first lasts for one month after birth, the second from the second to the sixth month, and the third phase from the sixth to the twenty-sixth month. Each of these phases has its special neuropsychiatric characteristics, knowledge of which is indispensable for the detection of variations from the normal. The discovery of the too early disappearance of some of these signs or the undue persistence of others may give the clue to proper therapeutic and prophylactic measures, as they describe in detail. Among the special characteristics cited is the peculiar pupil reaction to light in infants up to a month old; in infants up to six months the flexion of the foot on the leg and the fan spreading of the toes when the back of the foot or lower end of the tibia is brushed three, four or five times with a blunt instrument or the end of a match. This reflex was found constant under the age of six months in the forty infants tested, but gradually subsided during the following six months. It persisted unmodified only in children that developed Little's disease. After the fifteenth month the persistence of this reflex must be regarded as pathologic.

Perception and reaction to pain are more sluggish the younger the infant. In healthy infants of eight or nine months the reactions seem to occur as rapidly as in the adult, but in children with inherited or acquired taints the interval may be long. Two much debilitated infants of eight and ten months did not cry and did not withdraw their hand when the skin was pinched. From the sixth to the twenty-sixth month the tendon reflexes are livelier than in adults. From the seventeenth to the twenty-eighth month there is a marked tendency to physiologic retention of attitude. If the arms or legs are placed in a position which would fatigue an adult, the infant leaves them in this position and seems to forget them. If the arms are raised and then one is passively lowered, the child leaves the other in the air and does not seem to think of lowering it spontaneously. The acquisitions in the psychic sphere are reviewed in detail likewise. The normal child begins to say "I" between the twenty-second and twenty-eighth months, and to control the sphincters between the fifteenth and twentieth months.

31. Summarized in Abstract 83 below.

32. **Supernumerary Rib Simulating Pott's Disease.**—The girl of 13 held head and neck as if there was a process of caries in the cervical spine. Radioscopy explained the trouble as a supernumerary cervical rib. Several physicians had been misled into assuming Pott's disease and imposing treatment for it until radioscopy cleared up the case.

Bulletin de l'Académie de Médecine, Paris

Jan. 29, 1918, **79,** No. 4

33 *Pituitary Treatment of Paralysis of the Intestines. E. Kirmisson.—p. 82.
34 *Extraction of Bullet in Heart Wall. H. Hartmann.—p. 84.
35 *Capillary Drainage of Mastitis. H. Chaput.—p. 85.
36 Mixed Typhoid and Paratyphoid Fever. G. Etienne.—p. 86.
37 *Typhus at Paris. A. Netter and Blaizot.—p. 90.

33. **Pituitary Extract in Treatment of Paralysis of the Intestines.**—Kirmisson calls attention to the action of pituitary extract on the paralysis of the intestine which so often follows operations for appendicitis. He describes a typical case in a girl of over 10 who had no movements of the bowels for six days after removal of a gangrenous appendix. The abdomen was enormously distended, and neither lavage of the stomach, enemas or castor oil suppositories had any effect on the symptoms of acute peritonitis. Then a subcutaneous injection of pituitary extract induced a small passage, and repeating the injection on two successive days dissipated the alarming symptoms. He used a French preparation of the posterior lobe of the pituitary body. He adds that the constancy and the regularity of the results in his experience with this treatment are as interesting from the physiologic as from the clinical standpoint.

34. See Paris Letter, page 714.

35. **Capillary Drainage of Suppurating Mastitis.**—Chaput makes two radiating incisions in the areola over the abscess, and evacuates it, passing a horsehair through the cavity of the abscess, the ends emerging through the two incisions and tied together. He says that the drainage induced heals the lesion and there is no shriveling of the tissues and no interference with lactation.

37. **Typhus at Paris.**—Netter and Blaizot discovered typhus in a family of ragpickers at Paris. The two brothers of 12 and 14 seemed to have typhoid when they entered the hospital, but the patches of roseola seemed rather larger than those of typhoid, and a little darker in color. Six members of the family were affected and all recovered, but the father died in another family in which three members were affected. All of the nine patients had lice when they entered the hospital, but they were freed from the vermin and no further contagion occurred. Netter warns that there are no pathognomonic signs of typhus; the exanthem is fleeting and may not appear at all, but the stormy onset, the rapidity with which the fever reaches its height, the slight differences between morning and evening temperature, and the comparatively short course, the temperature subsiding rapidly, in a day or two, the accentuation of the nervous phenomena, the habitual rarity of intestinal symptoms and the relative frequency of complications, parotitis and gangrene, should arouse suspicion. In case of death, the relatively early date and the absence of intestinal lesions should confirm the suspicion. He thinks that probably typhus has never died out entirely in Paris. He had in his service in 1916 nine cases, all at the same time, in children who had been in the scarlet fever ward for a month. The retrospective diagnosis was mild typhus, Brill's disease.

Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 30, 1917, **41,** No. 33

38 *Spirochete Jaundice. P. Pagniez, and others.—p. 1181.
39 *Transfusion in Anemia. P. Ravaut and de Kerdrel.—p. 1187.
40 *Diphtheria in the Gassed. P. Ravaut and Réniac.—p. 1190.
41 Vagotonic Hyperidrosis. L. Lavastine and J. M. Fay.—p. 1192.
42 *Malarial Meningism. E. de Massary and Tockmann.—p. 1195.
43 *Typhus. D. Danielopolu.—p. 1200.
44 *Slow Endocarditis. D. Denéchau and R. Picard.—p. 1202; R. Debré.—p. 1207; H. Vaquez.—p. 1212.

38. **Spirochete Jaundice.**—The Inada spirochete was found by Pagniez and his co-workers in 45 of 87 cases of jaundice in soldiers, and they comment on the reddish saffron tint of the jaundice. This tint is the combination of the yellow jaundice and the red vasodilatation in the skin. The latter may be pronounced even when there is no icterus; in the severer cases the color was like that of a ripe pomegranate; pruritus was rare; tardy bradycardia was common. The pigments in the spirochete urine seem to be especially unstable. If a drop or two of acetic acid is added to a test tube containing a few cubic centimeters of urine and it is heated as for the albumin test, the acidified portion of the urine turns a bright green. They found that this occurred only between the fifth and eighth day. Epistaxis was present in 13 cases and was the only form of hemorrhage. The blood clot failed to retract, and the proportion of platelets was much below normal. The changes in the blood were noted early, even before the jaundice, and they may aid in the differential diagnosis. During convalescence, the pallor, the persisting jaundice and the falling of the hair were striking features. Alopecia followed in 21 of 26 cases; it resembled in every respect syphilitic alopecia.

39. **Transfusion in Anemia.**—The man of 36 had been having chronic progressive anemia for eleven years and had dragged from hospital to hospital after his mobilization. The reds were considerably less than 2 million; the hemoglobin, 13 per cent.; whites, 2,000. Then he was given an ample direct transfusion of blood from his wife. The transfusion lasted twenty-nine minutes, and from that day improvement rapidly progressed. In less than a month the reds numbered 3,400,000; whites, 9,300, and hemoglobin 45 per cent. and the man was restored to active life by the single transfusion.

40. **Diphtheria in the Gassed.**—The young man developed diphtheria during convalescence from gassing, but the symptoms were ascribed to the gas until diphtheric paralysis developed. The paralysis yielded to antitoxin treatment in two series in the course of a month.

42. **Malarial Meningism.**—The young soldier presented symptoms deceptively simulating epidemic meningitis, but finally traced to malaria. In another similar case the young man was picked up in the depot in coma from malarial meningism.

43. **Chlorin Treatment of Typhus.**—Danielopolu has been seeking some harmless way of administering internally some disinfectant that would act analogously to neutral solution of chlorinated soda. After extensive tests he decided on chlorinated saline which seems to be innocuous in the proportions of 6.5 gm. sodium chlorid and 0.4 gm. chlorin to the liter. Rabbits stand 20 c.c. of this solution per kg. by the vein without the least sign of toxic action. He has given this solution in over 1,000 intravenous injections, without the least untoward incident except the chill which is seldom lacking. The dose was never over 500 c.c. and 90 per cent. recovered of the men given this treatment, which was applied only in the gravest cases, that is, those with intense delirium and prostration, cyanosis and cold extremities, with leuko-

cytosis of over 20,000 after the middle of the second week. In some cases the whites numbered 60,000 and more. Of all those presenting grave symptoms and not given this treatment, only 8 per cent. recovered. Those who died in spite of this treatment were all over 40 and in four of the six fatal cases death was due to some streptococcus complication. The chlorin water is prepared by letting hydrochloric acid act on a solution of calcium hypochlorite. The chlorin generated passes through a tube containing decinormal soda which frees it from the acid fumes, and then it passes on to dissolve in distilled water. The sodium chlorid is then added. The solution sheltered from light keeps unchanged in ampules for two or three days.

44. **Slow Endocarditis.**—Denéchau's patient was a man of 28 who for ten months had had endocarditis with muscular and abdominal pains, and occasional erythema with purpura, the temperature indicating a subacute septicemia. An autogenous vaccine and antitoxin seem to be giving some benefit now. Josué reported a case of endocarditis, without joint involvement, but prompt improvement followed salicylate treatment. Debré's patient died about a year after the first insidious symptoms. In addition to the heart and joint symptoms there were patches of painful erythema and the joint troubles were of a chronic and ankylosis character. The only case of recovery known is said to be that published by Hemsted. Treatment was with a serum obtained by inoculating a horse with the streptococci isolated from the patient's blood.

This slow endocarditis is one of the forms of malignant endocarditis that develop in the course of valvular disease. The symptomatology is variable; the essential sign is a febrile state. The endocarditis is responsible for most of the embolic complications; their localization differs according as the right or left heart is affected. Vaquez has encountered seventeen cases of this slow endocarditis in recent years. It is usually mistaken for typhoid, malaria, trench fever or tuberculosis. An old valvular trouble should turn the scale in favor of this infectious endocarditis. The spleen was a little enlarged in 75 per cent. of his cases. The fever morning and evening may be the only sign at first for a long time; the appetite keeps good and the tongue clean. Three of his cases were of the anemic type; in one case there were only 1,200,000 reds. All the seventeen cases terminated fatally in from six to ten or fourteen months. No treatment showed the least durable efficacy. Rist has reported a case of recovery; the woman was pregnant and the endocarditis subsided and she was delivered at term.

Paris Médical

Jan. 12, 1918, **8**, No. 2

45 *The New Bases for Radiotherapy. E. A. Weil.—p. 33.
46 Technic for Ethyl Chlorid Anesthesia. Jacob and Durieux.—p. 38.
47 Paralysis of Nerves in Lacerate Foramen. H. Aloin.—p. 40.
48 Diphtheria Complicating Shell Wounds. Marie and Martin.—p. 42.

45. **Bases for Radiotherapy.**—Weil states that our knowledge of the roentgen rays and how to manage them has been much increased lately, broadening their sphere of therapeutic action while augmenting their efficacy and their harmlessness. Benoist, for instance, has established that the specific opacity of simple bodies is a determined function and generally increases with their atomic weight. Certain substances, the radiochroic substances, sift out the rays, and the rays with short waves are the ones for therapeutic use, as they have the elective biochemical action. Another law he cites is that the therapeutic action on the living cell is due chiefly to the secondary rays which the roentgen rays generate in the tissues; it is not due to the dose absorbed. The susceptibility to the roentgen rays is greatest in tissues whose reproductive power is greatest, whose karyokinetic future is longest, the reproductive power greatest, whose morphology and functions are the least definitely established. Weil concludes his review with the remark that many persons judge radiotherapy by the results they obtained with it during the early years of the use of the roentgen rays. They forget that the radiotherapy of today differs from that of yesterday as fundamentally as the surgery of the day differs from that of the era before Pasteur.

Presse Médicale, Paris

Jan. 24, 1918, **26**, No. 5

49 *War Tachycardias. C. Aubertin.—p. 37.
50 *Section of Ulnar Nerve. M. Galland.—p. 41.
51 *Toxicity of Emetin. J. Guglielmetti.—p. 43.
52 *Arteriomesenteric Obstruction of Duodenum. M. Romme.—p. 45.
53 *Dosage of Diphtheria Antitoxin. J. Comby.—p. 46.

49. **War Tachycardias.**—Aubertin discusses the tachycardia free from all murmurs, and especially the cases in which the tachycardia can be banished. When the blood pressure is normal, the tachycardia, he says, is generally reducible, but with hypertension this is less apt to be the case. In thirty-four in this group with hypertension, eighteen were under 30 years old, and only five over 40, and three of the latter were officers. There was nothing to suggest nephritis in the antecedents. The pulse grows regularly slower from morning till midnight, unless the men have been walking or smoking. The tachycardia does not seem to be directly influenced by bed rest or by compression of the eyeballs, but in the reducible form it gradually yields to repose and dieting. In such cases the men can return to duty after a period of convalescence, but it is best to warn the regiment physician of the possible return of symptoms unless the man is looked after or assigned merely to light duty. Four of the men returned later with recurring tachycardia but in a mild form, and the pressure was normal; probably the forewarned regiment physician had detected the first signs of the tachycardia and sent the man back. In one case, however, the clinical picture was worse than at first, showing that these disturbances in the heart rhythm although not symptomatic of valvular disease, are yet liable to become aggravated.

With nonreducible tachycardia with hypertension he sends the men before the board of review for assignment to the auxiliary service only or discharge. The errors to be guarded against are overlooking valvular disease when extreme tachycardia is the main symptom. He has made this mistake himself several times. Rest, digitalis or compression of the eyeball may slow the heart and bring out the murmur. Another mistake is that the tachycardia is overlooked as the pulse has returned to normal under bed rest, but the tachycardia returns after test exertion. It must be borne in mind that the way the pulse behaves on the firing line is the important thing—not how it behaves in the hospital. These tachycardias are probably brought on by eating too much meat, drinking too much wine and coffee, and smoking too much, in addition to the fatigues of the service. Most of the men are from rural districts not accustomed to much meat, alcohol or tobacco. This triple intoxication may in time induce serious and durable functional disturbance. The important fact from the practical point of view, he remarks in conclusion, is that many of these men with tachycardia are less well fitted for active service, nothwithstanding the absence of any lesion, than many men with valvular disease.

50. **Severing of the Ulnar Nerve.**—Galland reiterates that the peripheral end of a severed nerve always degenerates throughout. The nerve regenerates by fibers issuing from the central stump, and this requires six, ten or more months. Any appearance of early restoration of function is due to substitution by other nerves.

51. **Toxicity of Emetin.**—Guglielmetti has continued his study of this subject since his first report summarized in The Journal, Aug. 11, 1917, p. 498. His clinical experiences and those related by others and three cases personally observed have confirmed the cumulative action of the drug and the dangers with intravenous administration. He advises never to go over 0.15 gm. a day for five or six consecutive days; or 0.10 gm. for eight or ten; or 0.05 gm. for over fifteen or twenty days, and the intervals between the series should be long. Fatal toxic action is liable with 0.6 gm. at one time and death is practically certain with 1.2 gm. at one time.

52. **Chronic Arteriomesenteric Occlusion of the Duodenum.**—Romme refers particularly to this obstruction of the bowel in persons inclined to ptosis. The occlusion of the duodenum may not be complete, but it may be enough to induce digestive disturbances ascribed to various causes, but in reality they are the result merely of this partial arteriomesenteric occlu-

sion. Radioscopy may show vigorous peristalsis and the outline of the duodenum changes its shape and size, but the contents are not passed along. Unless this chronic partial obstruction of the duodenum in visceroptosis is thought of and examined for, treatment is liable to be applied on the wrong basis. By fattening the patient a little, the tendency to ptosis is reduced and the occlusion may subside. With the more pronounced form, the same mechanical measures as with the acute occlusion may be necessary, reclining prone or taking the knee-chest position. Romme quotes Vanderhoof's recent report of six cases in THE JOURNAL. He made his patients assume the knee-chest position for fifteen minutes every two hours, and lie prone the remainder of the time. If conditions are so grave that operative measures have to be considered, most surgeons prefer duodenojejunostomy or resection of the right half of the colon.

53. **Dosage of Diphtheria Antitoxin.**—Comby deplores the timidity of certain physicians who still hold back from high dosage and give diphtheria antitoxin in inadequate amounts. He would like to have the antitoxin marketed in large vials, up to 20, 40 or 60 c.c. The small vials might be labeled "preventive dose" and the large "curative dose."

Progrès Médical, Paris

Jan. 5, 1918, **33,** No. 1

54 *Nontoxic Antiseptics. L. Mencière.—p. 1.
55 Autochthonous Malaria. Two Cases. J. Tapie.—p. 3.
56 The Cure of the King's Stiff Neck. A. Satre.—p. 5.

Jan. 12, 1918, **33,** No. 2

57 Nature of Somnambulism. Bernheim.—p. 11.
58 *Placental Origin of Eclampsia. L. Bory.—p. 12.
59 Thyroidism and Loss of Flesh in Women. P. Blum.—p. 15.

Jan. 26, 1918, **33,** No. 4

60 *Immobilization of Fractured Femur. H. P. Achard.—p. 27.
61 Immobilization for Fractured Fingers. L. Senlecq.—p. 33.
62 *Fracture of Humerus in Throwing Grenade. L. Senlecq.—p. 34.

54. **Nontoxic Antiseptics.**—Mencière's nearly three years of experiments with scraps of human tissue and specimens of blood treated with guaiacol and benzoic acid, his intravenous injection of these drugs in animals, and his study of their effects on wounds, etc., have convinced him that this combination is strongly bactericidal, while it does not destroy the protoplasm of the cells or display any hemolytic action. Hence he declares that these stable drugs can be used in treatment of wounds as nontoxic and efficient antiseptics. In his experiments on rabbits he used 10 c.c. of a mixture of 2 gm. benzoic acid, 10 gm. guaiacol and 8 gm. alcohol to 1,000 gm. water. One rabbit was given five daily injections to a total of 65 c.c. in six days. No untoward by-effects were observed. The freezing point of this mixture is —0.45, the same as the freezing point of physiologic saline solution.

58. **The Placental Origin of Eclampsia.**—Bory's theory is that eclampsia is the result of insufficiency of the placenta just as uremia is the result of insufficiency of the kidneys, and jaundice of insufficiency of the biliary apparatus. The eclampsia is the terminal syndrome of placental insufficiency which permits the toxins from the fetus to pass into the maternal circulation unmodified. During the later months of pregnancy, the waste products of the fetus increase progressively in amount, and if they pass unmodified through the abnormal placenta, their toxic action injures the maternal organs and sets up a vicious circle with the result that symptoms develop suggesting both insufficiency of the kidneys and of the liver, and we have the clinical picture of eclampsia. The frequent protracted contractions of the uterus so common in primiparas may be the cause of the insufficiency of the placenta or may exaggerate it.

60. **Fracture of the Thigh.**—Achard gives eleven illustrations of various devices for immobilization and extension of the fractured femur. The devices of the kind in use before the war were designed for closed fractures, so that they had to be fundamentally reconstructed for the wounded. Whatever the device used, the traction must be powerful enough to overcome the muscular contraction. Weights of from 10 to 20 kg. at least must be used.

62. **Fracture of Humerus from Throwing Grenade.**—Since Phelip reported in 1916 a case of this kind, five similar ones have been encountered. The fracture occurs in healthy men as they throw the grenade by hand. The bone breaks obliquely into three overlapping pieces, as Senlecq shows by a radiogram. Vautrin's patient was an American soldier and the fracture occurred while he was playing ball. Consolidation was not complete until the end of the fourth month. In the other cases one month generally sufficed.

Revue de Chirurgie, Paris

July-August, 1917, **36,** No. 7-8

63 *Arteriovenous Aneurysms in War Surgery. E. Forgue.—p. 1.
64 *Skull Wounds. A. Schwartz and P. Mocquot.—p. 50.
65 *Extensive War Wounds. A. Chalier and R. Glénard.—p. 124.
66 *Repair of the Skull. C. Villandre.—p. 184.

63. **Arteriovenous Aneurysms in War.**—Forgue remarks that this complication of a war wound was never known before the modern small jacketed bullet was introduced, but it has become common since the Franco-Prussian War of 1870. He discusses how they should be managed, emphasizing in particular what not to do. Ligation of the central end of the artery is directly injurious, for reasons which he explains. The first step should be quadruple ligation, with excision of the aneurysmal segment of both artery and vein, realizing throughout the importance of keeping the arterial and the venous circulation separate. The quadruple ligature must be on a stretch of the vessels free from important venous collaterals. Other special points to bear in mind are described. Sometimes it is possible to release the vessels and close the opening in the vein or artery or both with a lengthwise suture, but time and experience have demonstrated that the most radical is the safest method.

64. **Skull Wounds.**—This article summarizes the lessons learned from 53 cases of skull wounds without injury of the dura, 136 in which the dura had been opened, and 64 in which the wound was merely superficial. Only 4 died in the first group but 78 died of the 136 men with wounds involving the dura mater. The details of 103 cases are given, classified according to the various types of injury and the indications. Local regional anesthesia is always preferable and the projectile should always be removed if it is of some size and in the hemisphere corresponding to the entering wound. It should be sought along its track under roentgen control. The magnet is better than forceps for removing a metal foreign body.

65. **Extensive War Wounds.**—This instalment concludes Chalier and Glénard's study of 1,500 cases of *grandes blessures* treated at an advanced surgical station. Abdominal wounds are discussed here and the principle of a prompt and ample laparotomy is insisted on. Expectancy, they declare, is a snare and a delusion. It is permissible only when from twenty-four to forty-eight hours have elapsed since the injury. In this event no food should be allowed, and the man should not be sent back any distance until after six weeks.

66. **Repair of the Skull.**—Villandre is convinced that headache and dizziness in some cases are due merely to the upset in the balance in the brain when there is a gap in the solid box containing it. A small trephine hole does not require repair, and he does not repair the breach unless symptoms suggest that intervention is called for. As a rule, all foreign bodies should be extracted before repairing the breach, and also all bone sequesters, but exceptionally this might be omitted in the absolute absence of symptoms. Excessively high pressure and albumin content of the cerebrospinal fluid should warn to postpone the intervention, but convulsions do not contraindicate it. For various reasons enumerated, his choice for closing the gap is with several shavings of costal cartilage or bone-periosteum scraps from the tibia, all from the patient himself. Only when he refuses those autografts, Villandre uses a plate of bone from a human or sheep skull or other source. General anesthesia is necessary in the autografting cases; the various steps of the intervention on chest or tibia and skull are described in detail with illustrations. He protects the cartilage grafts with catgut passed

from side to side to form a network, suturing the scalp hermetically over this with horsehair. This not only protects but nourishes the cartilage engrafted scraps. The man must lie horizontal afterward in a warm bed and room, without a pillow, for eight days at least. In his 130 cases there were no deaths and the intervention proved a success in all but eight cases. The bone-periosteum grafts were all successful; the cartilage grafts in all but 4 per cent.; the bone plate cases in all but 18 per cent. while the pulverized bone paste was thrown off later in 50 per cent., that is, in two of the four cases. The men benefited materially and morally by the closure of the breach in the skull, the symptoms subsided and the men were able to lie down to sleep, in short all the reactions improved except the reaction to changes in temperature. But still, Villandre advocates temporary or definite discharge from the service of men with wounds of the skull and brain as the later evolution may bring surprises, notwithstanding the benefit from the plastic operation on the skull. It should not modify in any way the decision as to the man's fitness for further service or the pension granted.

Annali d'Igiene, Rome

December, 1917, **27**, No. 12

67 Commercial Sterilization of Milk. C. Gorini.—p. 729.

Policlinico, Rome

January, 1918, **25**, Surgical Section No. 1

68 Inflammatory Fibrous Tumor of the Neck. P. Gilberti.—p. 1.
69 *Pseudohermaphrodite. C. Lollini.—p. 7; G. Filardi.—p. 19.
70 Experimental Lesions of Pituitary Body. A. Chiasserini.—p. 26.

69. **Pseudohermaphrodites.**—In both the cases described the aspect of the body and the external genitals were of a pronounced feminine type, with full breasts. Each had testicles simulating hernia. The interstitial gland was well developed, but there were no other internal sex organs. The usual assumption that the ovaries preside over the development of the breast is disproved by these cases, as there were no ovaries, tubes or uterus in either.

Prensa Medica Argentina, Buenos Aires

September 10, 1917, **4**, No. 10

71 Normal Beef Serum in Treatment of Anthrax.—Kraus and Others. —p. 119. Continuation.
72 Complications of Criminal Abortion. M. L. Perez.—p. 121.

Dec. 20, 1917, **4**, No. 20

73 Ignored Syphilis. N. V. Greco.—p. 263.
74 *Antityphoid Vaccination in Argentina. S. Mazza.—p. 264.
75 The Trichocephalus in a Camel. Parodi and Widakowich.—p. 266.
76 Testing Toxic Doses on White Mice. (Laucha blanca.) O. B. Montes.—p. 268.
77 *Access to the Iliolumbar Region. R. Finochietto.—p. 271.
78 Tuberculosis in Argentina. D. Cabred.—p. 272.

74. **Antityphoid Vaccination in Argentine Army.**—Mazza concludes from his experience that the number of indigenous strains used in making the vaccine should be increased, always having paratyphoid B bacilli in a proportion of one third. He advises two injections as ample but increasing the number of germs to 2 billions at the first and 6 billions at the second injection. He also advises repeating the injections annually, at least for the troops.

77. **Access to the Iliolumbar Region.**—Finochietto expatiates on the ample access afforded when the patient is placed with his trunk lying on one side on the table, the legs resting on the floor at an angle of 130 degrees. The exaggerated scoliosis thus induced opens up widely the space in question and the spine is readily exposed. Five illustrations accompany the article.

Revista de Medicina y Cirugia Practicas, Madrid

Nov. 21, 1917, **117**, No. 1483

79 Delivery with Contracted Pelvis. D. J. J. de la Muela.—p. 241.
80 Tremor in Masturbating Degenerates. J. S. De Figueroa.—p. 250.

Dec. 7, 1917, **117**, No. 1485

81 Blunders in Diagnosis. D. J. Blanc.—p. 321.
82 Lumbar Puncture with Skull Trauma. D. J. Blanc.—p. 327.

Revista Medica del Uruguay, Montevideo

December, 1917, **20**, No. 12

83 *Paralysis of Left Recurrent Nerve with Mitral Disease. A. Carrau. —p. 727; P. E. Nuñez.—p. 735.
84 *Pedunculated Myoma on Gravid Uterus. H. F. Platero.—p. 739.
85 *Premature Senility after Puerperal Fever. A. Turenne.—p. 742.
86 *Annular Dystocia and Pituitary Extract. C. P. Colistro and H. F. Platero.—p. 752.
87 *Meningitis at Montevideo. L. Morquio and others.—p. 769.

83. **Paralysis of Recurrent Nerve with Mitral Stenosis.**—Carrau's patient was a girl of 16 who had presented symptoms of mitral stenosis since an attack of acute rheumatism four years before. Aphonia developed suddenly and has persisted for six months; it is relieved when the girl reclines and becomes more complete as she stands. The aphonia grew much less marked also under the influence of digitalis. Carrau believes that this is the youngest age reported to date for recurrent paralysis from this cause. The symptoms from the mitral stenosis had become much attenuated before the aphonia developed. The dilated auricle with its thick walls evidently presses on the pulmonary artery and forces it out of shape. This in turn presses on the left recurrent nerve.

Nuñez was called in consultation on the case, the first of the kind he had ever seen, and within two months he encountered a second case. The patient was a woman of 25 with a history of dyspnea on exertion and aphonia for years. Evidently a congenital and familial primary mitral stenosis was responsible for the aphonia in this case.

84. **Uterine Myoma Simulating Ovarian Cyst.**—The diagnosis of torsion of an ovarian cyst in a woman five months pregnant seemed beyond question, especially as the patient was only 20 and there had been no previous symptoms and no menstrual disturbances. The tumor was a fibromyoma on a twisted pedicle, 3 cm. long, implanted on the left body of the uterus.

85. **Premature Senility.**—Turenne has encountered four cases in which puerperal fever in young women seemed to have damaged the organs to such an extent that they shriveled away afterward, bringing on a premature general senility. In the first case a robust woman of 28 within two years lost 33 pounds, her teeth had dropped out without caries or pains, she had lost most of her hair, and the skin was dry, yellow and wrinkled. The general health was good except for arteriosclerosis. This increased and the woman succumbed to it at 38. Another primipara of 22 had had suppuration in the uterus for two months and menstruation had not returned in three years. Four teeth had dropped out and much hair had been lost but the general health was good and she had gained in weight but the aspect was that of a woman of 50. The two other cases resembled these, the young women looking old and wrinkled, with scanty hair, but they had not lost any teeth. The findings on palpation of the uterus were in all like those after subtotal hysterectomy. The persisting amenorrhea had never been accompanied by the deficit symptoms of the menopause, and there was nothing to call attention in particular to the suprarenals, thyroid or parathyroids. In all his experience with atrophy of the uterus from other causes, he never witnessed symptoms like the above. For the premature senility, there must have been various factors at work, possibly damage of glands with an internal secretion. He reviews what is known in regard to the functioning of these various glands, and urges a watch for deficit symptoms in order to apply the proper organotherapy in time, heeding the reactions induced. Another practical conclusion from his experience is that women who have passed through severe puerperal fever should be long supervised to ensure hygienic conditions and promote absorption of exudates, etc., with the viscera in their normal position.

86. **Annular Dystocia and Pituitary Extract.**—Colistro and Platero report a case of difficult delivery in a healthy woman of 35 with normal pelvis, the fetus rather smaller than the average. As labor was unduly protracted, after failure or attempts at forceps extraction, pituitary extract was given.

The fetal heart sounds then ceased to be heard. The fetal head was free in the vagina but the annular contracture above was almost unconquerable although morphin was given freely afterward. At necropsy a hole was found just above the ring, opening into the pouch of Douglas, and responsible for the fatal peritonitis. This perforation was not present when the fetus was delivered or it would have been discovered during the careful examination that was made. The prolonged pressure of the fetal parts had evidently compromised the vitality of the tissues at this point. The pituitary extract had manifestly increased the tendency to contracture. Cases of annular dystocia in which pituitary extract has been given are much more difficult to bring to a successful conclusion than cases without it. Turenne has recently warned that dystocia is being encountered now with unprecedented frequency, and he ascribes this to the increasing use and abuse of pituitary extract.

87. **Meningitis at Montevideo.**—The Pediatric Society at a recent meeting listened to Zerbini's report of meningitis in the course of mumps in a boy of 13. The cerebrospinal fluid showed 99 per cent. lymphocytes at first but they gradually declined. Morquio remarked that mumps meningitis is generally mild and soon thrown off, but while it lasts it may aid in the differential diagnosis of the mumps in the absence of pronounced parotitis. A slight meningeal reaction is not meningitis, but merely a reaction to the elimination of toxins. He has known, however, of fatal cases of mumps meningitis and others which left durable nervous affections. Pelfort reported two cases of meningitis in infants about a year old, fatal in both, notwithstanding temporary improvement under antimeningococcus serum. Meningococci were numerous in the spinal fluid. Bonaba reported a fatal case of a diplococcus meningitis in a girl of 12. Improvement was marked for a time under serotherapy, but then the convulsions and hemiplegia returned. A silver salt was injected intraspinally and a fixation abscess induced but the child died the twenty-second day. Morquio commented on the greater virulence of the germs in the last year or so. In all the cases improvement follows the serotherapy, but a few days later the cerebrospinal fluid grows turbid again, the meningococci reappear and the symptoms return more severe and more tenacious. Zerbino stated that before 1916 his mortality had been only 11 per cent. but recently most of the cases terminated fatally. Solari mentioned a fatal case in a young child in which the meningitis was secondary to pneumonia, and pneumococci swarmed in the cerebrospinal fluid.

Semana Medica, Buenos Aires

Nov. 15, 1917, **24**, No. 46

88 *Uremic Meningitis. J. R. Goyena and V. Peradotto.—p. 545.
89 *Prophylaxis of Leprosy. A. G. Fages.—p. 552.
90 *Sand Test of Typhoid Carriers. R. A. Borzone and J. M. Carbone.—p. 569.

88. **Uremic Meningitis.**—Goyena and Peradotto report with minute laboratory detail a case of what seemed to be uremic meningitis consecutive to nephritis with retention of urea alone. The acute meningeal phase subsided under restriction to a milk diet, then milk and vegetable, and a diuretic (pulverized squill, 0.2 gm. daily). The urine findings were constantly negative except for a little albumin during the menstrual periods, but the woman, an otherwise healthy sextipara still has 1 per thousand urea in the blood. Their experience does not confirm Widal's statement that with urea over 1 per thousand the patients rarely survive for more than a year. They had one case with 3.9 per thousand, and the woman kept in good condition for more than a year and the proportion became much reduced before she was lost to sight. In the present case the proportion keeps at 1 per thousand and the condition is satisfactory, but as she has had one severe meningeal involvement from retention, any errors in diet are liable to bring it back again with fatal outcome.

89. **Leprosy.**—Fages says that prophylaxis of leprosy requires careful disinfection of mouth and nose and of the cutaneous lesions, to ward off contagion of others. These hygienic and prophylactic measures are never applied completely, according to his experience to date, so that each leper is a possible source of contagion. He knows of eighty cases of leprosy in his district in Argentina. They are scattered in seven different regions; no attempt is made to isolate them except in one town where ten are gathered under one roof. It is now planned to construct a large leprosarium with accommodations for 500 in the Chaco district. He protests that an inland leper colony of this kind is just adding fuel to the fire. The leper colony should be on some island apart from the centers of population. Each member of the colony should be given land and everything for successful farming. It should be a free farming community except that the inmates cannot leave the island.

90. **Sand Test for Typhoid Bacilli Carriers.**—Borzone and Carbone report the successful use of Carbonell's modification of the sand tube for differentiation of the more motile typhoid bacilli. The sand test was described in THE JOURNAL, April 15, 1916, p. 1281. Carbonell's modification consists in using an outer tube, 18 cm. long by 3.5 cm. in diameter, and an inner tube 14 cm. long by 2 cm. in diameter. The lower end of the inner tube tapers and curves up, and it is filled with sand to a height of 4 cm. The outer tube is partly filled with bouillon containing 1 per cent. glucose and a few drops of neutral red. The sand soaks up the bouillon, and the diluted specimen of feces is placed only in the inner tube. In from sixteen to eighteen hours the bouillon in the outer tube will contain typhoid bacilli in case of positive findings. In thirty suspected carriers, by this means the typhoid bacillus was detected in twenty-three and the paratyphoid B in three. Numerous tests with colon, paracolon, anthrax and dysentery bacilli and staphylococci confirmed the reliability of the differential findings.

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91 *The Divining Rod in Medicine. G. van Rijnberk.—p. 1799.
92 *Atrophy of Muscles of Central Origin. J. K. A. W. Salomonson.—p. 1811.
93 *Iron Scrap in Eyeball. J. Van der Hoeve.—p. 1819.
94 Pneumothorax in Pneumonia. W. A. Weisfelt.—p. 1825.

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95 *Meningitis. J. P. Bijl.—p. 2110.
96 Optochin in Pneumococcus Sepsis. C. J. C. van Hoogenhuyze and A. de Kleyn.—p. 2116.
97 Auscultation of Diastolic Pressure. J. Lankhout.—p. 2120.
98 Physical Conditions of Amsterdam Schoolchildren. J. Lubsen.—p. 2128.
99 *Liver Syphilis. W. Hoogslag.—p. 2131.
100 Paratyphoid B. A. Athmer.—p. 2134.

91. **The Divining-Rod in Medicine.**—Rijnberk discusses rather sarcastically some recent works on this subject by Van Gulik in the Netherlands and by Professor M. Benedikt of Vienna, remarking in conclusion that Professor Benedikt's age, 82, must be taken into consideration.

92. **Cerebral Atrophy of Muscles.**—In the case reported, a diabetic woman of 66 developed paralysis on one side, evidently from a focus of softening in the brain. This was soon followed by atrophy of the muscles on the paralyzed side with the reaction of degeneration, the whole of unprecedented intensity. Salomonson theorizes to explain this as the result of the inadequate nourishment of the nerve cells owing to the reduction in functioning on account of the paralysis. The diabetes is probably responsible for the fact that the nourishment became so rapidly insufficient, entailing the early degeneration.

93. **Iron Scraps in the Eyeball.**—The two cases reported emphasize the importance of removing minute scraps of iron from the eye, although they may seem to be perfectly tolerated at first. In one case, after transient ulceration of the cornea, vision seemed to be normal for seven years, but then severe pain developed in that eye and a brown tumor was found on the iris, about 4 mm. in diameter. It was assumed to be a melanosarcoma and its excision was planned. Just before the operation, however, it was noticed that the supposed tumor had become detached from the iris and

changed its position. It was removed and proved to be a scrap of steel in the midst of an amorphous mass. Only traces of the lens were found, but vision was left 3/4. Vision was still more reduced in the second case; in both cases the direct siderosis was unusually pronounced and the eye and vision suffered.

95. **Meningitis.**—Bijl relates that in 1915 there were 54 cases of meningococcus meningitis recorded in the Netherlands; 226 in 1916 and 449 in the first six months of 1917. Army medical officers are now being called in consultation by civilian physicians in civilian practice, and bacteriologic tests are promptly made. The mortality from meningitis in general was 3.96 per 10,000 inhabitants in 1901 but dropped to 1.41 in 1916. The mortality in 1916 was 54 per cent., and was 43 per cent. in the first half of 1917. The distribution of the meningococcus meningitis in 63 communities in 1916 showed that only one case occurred in fifty-one; that is, in 81 per cent. of the cases the "epidemic" meningitis failed to start an epidemic. This was also the case in the first nine months of 1917. In 72 per cent. of the 131 communities with less than 20,000 inhabitants the "epidemic" was restricted to one case.

He suggests that probably many cases in the past have escaped detection as only the bacteriologic findings are able to differentiate the sporadic from the "epidemic" type, and the microscope was rarely used until recently. One fact which renders this plausible is that the supposed sporadic meningitis in past years was sometimes followed by several other cases, small epidemics of 17, 14, 16, 18 fatal cases, as was the record at Vlaardingen (about 20,000 inhabitants) in the years 1901-1904. This same multiplication of cases or small epidemics has been observed also with croupous pneumonia. This usually occurs sporadically but there are sometimes small epidemics and even extensive epidemics. Another point of resemblance between the "sporadic" and the meningococcus types was revealed by reexamination of men who had had sporadic meningitis in recent years. Deafness and other complications were found numerous, which may be accepted as further evidence of the meningococcus' evil influence. In the experiences of the last three years, instances of direct contagion are known, but they are very rare. One soldier was already sick when he went home on leave and his brother also developed the disease. Another man from the same camp had been home on a furlough a few days before a case developed in the two families he had visited, and three weeks later another case in the family of another soldier from that camp. There had never been any cases in the camp at that time, but three months later cases began to develop. Bijl has never witnessed meningitis develop in a known carrier. The cases occur in jumps, and very long jumps. This seems to certify to conveyance by carriers, but it has seldom or never been demonstrated. Unhygienic conditions and especially overcrowding favor its development, and in the Netherlands conditions now almost invite it: the trips of soldiers to and fro, the overcrowding in barracks, the scarcity of dwellings in general, scarcity of food, and lack of fuel, render the hygienic conditions less favorable. But, even with all these drawbacks, the deaths from meningitis of all kinds, he reiterates, number only a third of the figure in 1901.

99. **Liver Syphilis Simulating Abscess.**—The man had lived in the tropics and the diagnosis of liver abscess seemed beyond question, but under potassium iodid, the symptoms began to subside and the Wassermann reaction confirmed the syphilitic nature of the lesion.

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101 *Acute Leukemia. S. Baastrup.—p. 5.
102 *Nomenclature for Diseases of the Blood. V. Bie.—p. 14.
103 *Test for Urobilin in the Urine. S. Marcussen and S. Hansen.—p. 16.

101. **Acute Leukemia.**—Baastrup reports in detail four cases of acute leukemia. The patients were two unmarried women of about 34, a man of 38 and a boy of 6. In three of the cases the sudden onset of severe sore throat led to the diagnosis of diphtheria. In some of the cases on record the stomatitis and gingivitis were the first manifestations of the disease to attract attention, but in the majority of cases several weeks or months of lassitude and lack of appetite with occasional vague pains and more or less anemia generally preceded the other symptoms, but the latter then developed suddenly and in a most pronounced form. The course then resembles that of acute sepsis. That leukemia is an infectious disease now seems to be beyond question. Bie has reported a case of leukemia in a housemaid developing soon after the death of the head of the family from leukemia with a three years' course, and seven other writers have reported similar multiple cases in a family. The hemorrhagic diathesis may manifest itself first in the internal ear, retina or serous and mucous membranes as well as in the skin. Leukemic infiltration is common, and also enlargement of glands, liver and spleen, but they are not inevitable. The most constant manifestations are the continuous fever, anemia, hemorrhagic diathesis and stomatitis. All the other symptoms are inconstant, and it is more than probable that some cases have escaped recognition.

102. **Nomenclature for Diseases of the Blood.**—Bie would retain plethora, hydremia, leukemia and leukocytosis, but suggests, instead of leukopeny, "oligoleukocytosis," and "polycytosis" when both reds and whites are increased in numbers, the plasma reduced in volume. If the corpuscles are in normal proportions but the amount of plasma is below normal, he suggests "meioplasmia"; with "erythrocytosis" when the whites are normal and the reds increased, and "erythremia" as the idiopathic chronic disease from this cause.

103. **Dilution Test for Urobilin in the Urine.**—Marcussen and Hansen treated urine containing urobilin with various acids and worked out a simple technic which, they say, offers several advantages over those in vogue, the latter being too complicated for clinical use or not sensitive enough. The method described does not give the absolute figures, but it takes only a few minutes to show whether urobilin is present, and in what proportions. To 10 c.c. in the glass A are added 3 drops of 5 per cent. tincture of iodin. After mixing, 1 c.c. is transferred to the reagent glass B. To the 9 c.c. urine left in the glass A are then added 9 c.c. absolute alcohol and 1 gm. zinc acetate. When the zinc acetate is entirely dissolved, the whole is filtered through a smooth filter (9 cm. in diameter) into a reagent glass of this diameter. This reagent glass now contains the 9 c.c. urine plus the 9 c.c. alcohol, etc. The total volume is thus 18 c.c.; the dilution is 1:2. If the filtrate is still fluorescent, then in the glass B 3 c.c. of water, 1 c.c. of a clear 20 per cent. aqueous solution of zinc acetate and 5 c.c. of alcohol are added to the mixture in glass B. The dilution here is 1:10 If the filtrate then is still fluorescent, 5 c.c. of urine are placed in still another glass containing 5 c.c. water and 2 drops tincture of iodin. Of this mixture, 1 c.c. is transferred to a new glass and mixed with 3 c.c. water, 1 c.c. of a 20 per cent. solution of zinc acetate and 5 c.c. of absolute alcohol and filtered; the dilution here is 1:20. If the filtrate still fluoresces, 5 c.c. of urine are mixed with 15 c.c. water and 2 drops iodin. Of this mixture 1 c.c. is transferred to a new glass and to it are added 3 c.c. water and 1 c.c. 20 per cent. solution of zinc acetate, with 5 c.c. alcohol, and the whole filtered; the dilution here is 1:40. Among the fifty apparently normal persons tested, fluorescence occurred with dilution of 1:10, so that 1:20 seems the lowest limit for pathologically increased urobilinuria. In some persons with liver disease, fluorescence occurred with dilutions of 1:40 or 1:80 or even greater dilutions than this. The alcohol proportion has to be not less than 40 per cent. All that is required for the test are four graduated pipets; 1 gm. finely pulverized zinc acetate; a 20 per cent. solution of zinc acetate, with a 5 per cent. tincture of iodin and a dropper for it.

A number of experiments with other technics are described in detail. With Schlesinger's test, a positive response was obtained both with liver disease, with various surgical affections, and in the healthy.